The National Institute of General Medical Sciences

Fact Book for Fiscal Year 1978

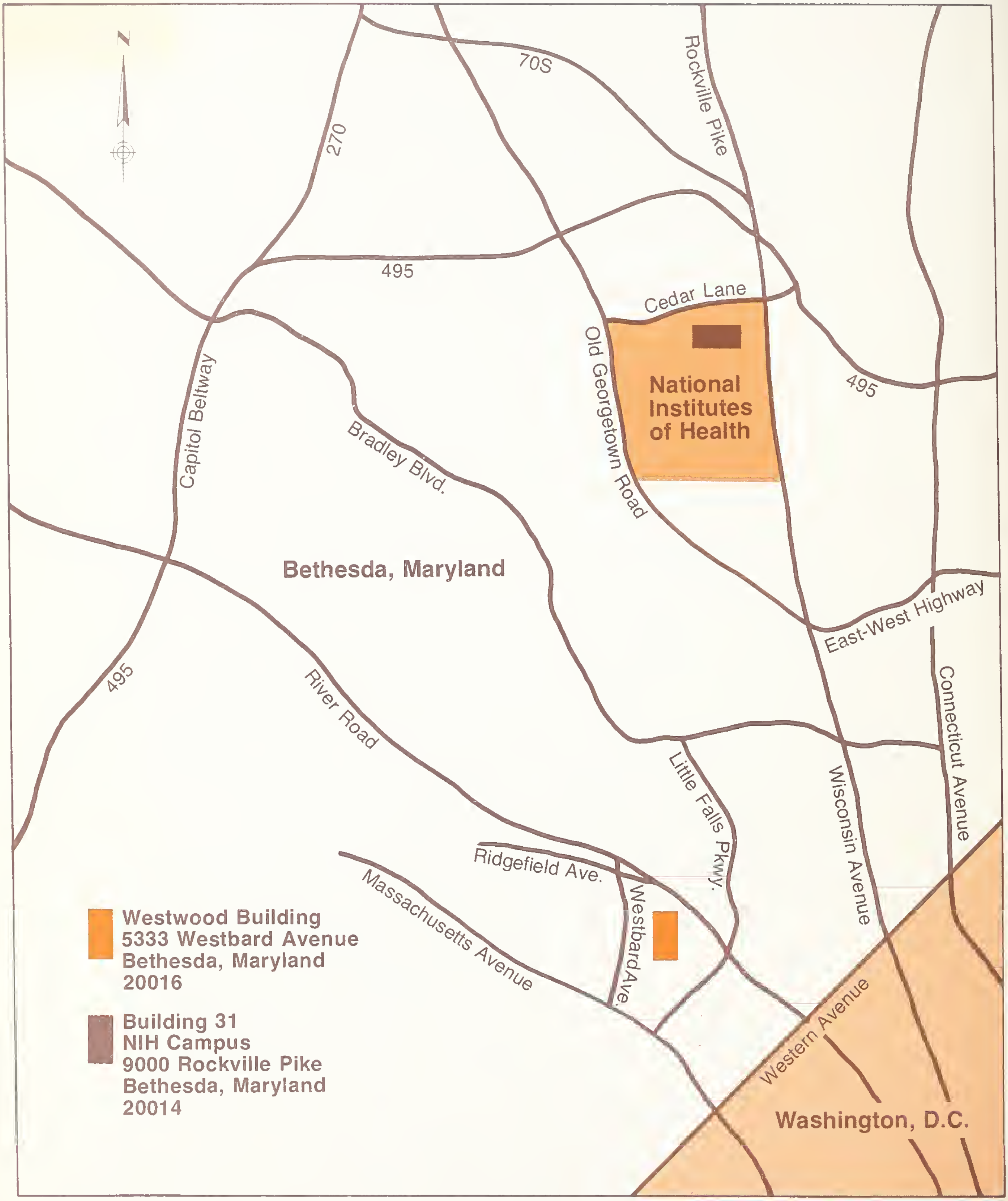
U.S. Department
of Health,
Education,
and Welfare

Public
Health
Service

National
Institutes
of
Health

REF

Location of Buildings Occupied by NIGMS Personnel



🟧 **Westwood Building**
5333 Westbard Avenue
Bethesda, Maryland
20016

🟫 **Building 31**
NIH Campus
9000 Rockville Pike
Bethesda, Maryland
20014

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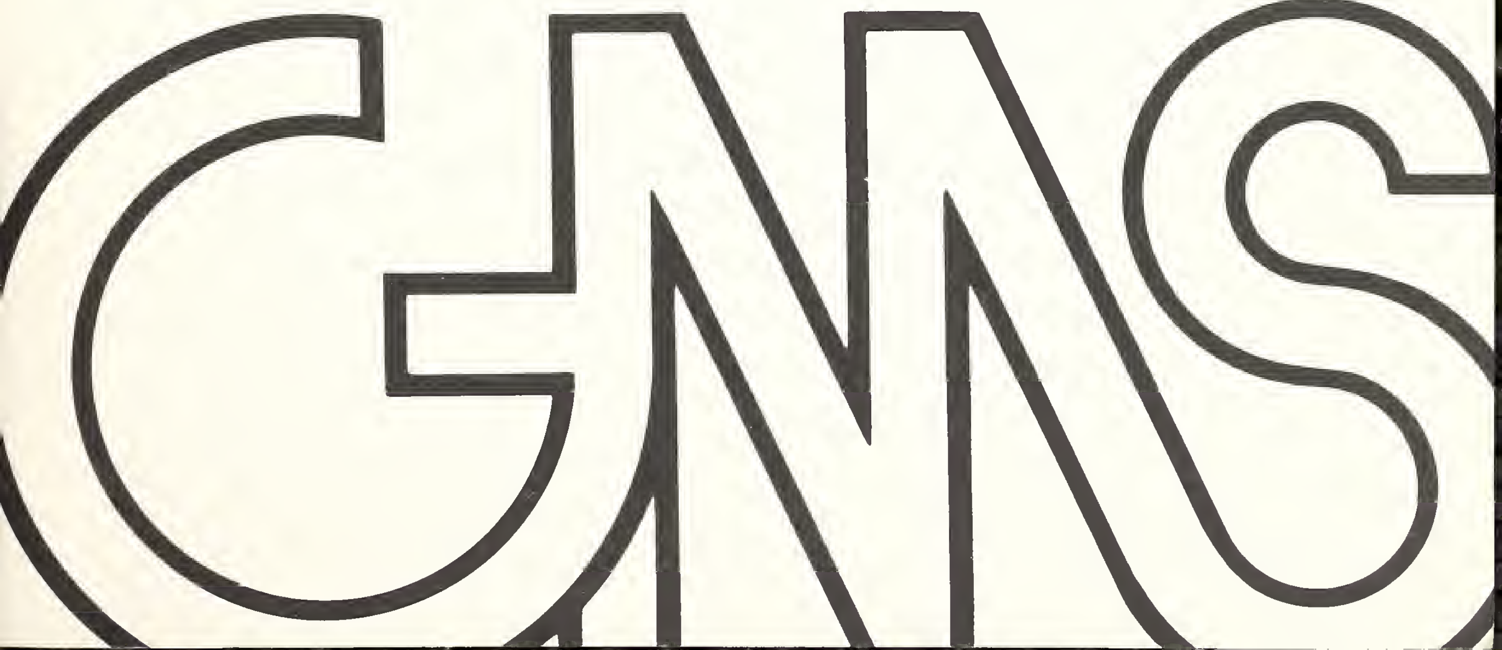
DHEW
Publication No.
(NIH) 79-1815



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The National Institute of General Medical Sciences

Organization and Functions

Introduction

The National Institute of General Medical Sciences (NIGMS) supports research and research training at universities, medical schools and similar institutions throughout the country. Such research and training undergird the research areas of all the other, categorical Institutes.

The broad definition of the fields of responsibility of NIGMS is based on Public Law 87-838, Sec. 442:

> "An Institute for the conduct and support of research and research training in the general or basic medical sciences and related natural and behavioral sciences which have significance for two or more institutes, or are outside the general area of responsibility of any other institutes, established under or by this Act."

Institute activities are organized and conducted through its five operating programs: Cellular and Molecular Basis of Disease, Genetics, Pharmacology-Toxicology, Physiology and Biomedical Engineering, and Minority Access to Research Careers (MARC). Inter-program cooperation is stressed because projects and developments in one program frequently are relevant and of consequence to others. Each program fosters and supports multidisciplinary approaches and resources, employing (except for the special MARC Program) the full range of support mechanisms--research project grants, program-project grants, research center grants, career development awards, and institutional and individual fellowships.

This booklet describes the organization and operation of the NIGMS and its individual programs and also provides a historical perspective of the Institute, charts its fiscal status, and describes the mechanisms that are used to evaluate applications that come to it for support. Inquiries from readers who may wish further information about the Institute are welcomed.

Directory

NIGMS Professional Personnel

OFFICE OF THE DIRECTOR

	Bldg.*	Room	Telephone**
Director, Dr. Ruth L. Kirschstein.	31 WW	4A52 926	496-5231 496-7891
Deputy Director, Dr. Leo von Euler	WW	926	496-7891
Associate Director for Program Activities, Dr. Arthur E. Heming	WW	949	496-7061
Assistant Director for Clinical Research Dr. Emilie A. Black	WW	919	496-7373
Special Assistant for Manpower, Dr. Charles A. Miller	WW	903	496-7021
Special Assistant, Dr. Folke Sjoquist	WW	919	496-7760
Executive Officer, Mr. William Fitzsimmons	WW	922	496-7714
Office of Program Activities, Dr. Arthur E. Heming, Associate Director	WW	949	496-7061
Fellowships Officer, Dr. Roger Fuson	WW	953	496-7368
Grants Management Officer, Mrs. Evelyn Carlin . .	WW	938	496-7746
Office of Administrative Management, Mr. William Fitzsimmons, Director	WW	922	496-7714
Administrative Officer (Vacant)	WW	9A09	496-7191
Financial Management Officer, Mr. G. Earl Hodgkins	WW	9A03	496-7123
Personnel Officer, Mrs. Judy Vickers	WW	436	496-7577
Personnel Specialist, Mrs. Elena D'Orazio	WW	436	496-7161
Office of Program Analysis, Dr. Howard Jenerick, Chief	WW	9A18	496-7008
Office of Review Activities, Dr. Vincent Price, Acting Chief	WW	909	496-7563

---

*Building 31 Main NIH Campus, 9000 Rockville Pike, Bethesda, MD 20014
WW-Westwood Building, 5333 Westbard Ave., Bethesda, MD 20016

**Area Code 301

	Bldg.	Room	Telephone
Executive Secretaries:			
Dr. Martha Panitch, Pharmacology-Toxicology Review Committee	WW	953	496-7585
Dr. Prince Rivers, Minority Access to Research Careers Review Committee	WW	9A17	496-7357
Dr. Lee Van Lenten, Cellular and Molecular Basis of Disease Review Committee	WW	907	496-7621
Mrs. Mary Wolff, Genetic Basis of Disease Review Committee	WW	953	496-7585
Office of Recombinant DNA Activities, Dr. William J. Gartland, Director	31	4A52	496-6051
Dr. Stanley Barban	31	4A52	496-6051
Dr. Michael Resnick	31	4A52	496-6051
Office of Research Reports, Mr. Paul A. Deming, Information Officer	WW	9A07	496-7301
Mrs. Wanda Warddell	WW	9A07	496-7301
SCIENTIFIC PROGRAMS			
Cellular and Molecular Basis of Disease Program, Dr. Charles A. Miller, Director	WW	903	496-7021
Deputy Director, Dr. Vincent Price	WW	909	496-7563
Special Assistant, Mrs. Vivian Dickson	WW	903	496-7463
Scientist Administrators:			
Dr. Artrice Bader	WW	904	496-7294
Dr. W. Sue Badman	WW	904	496-7294
Dr. Marvin Cassman	WW	903	496-7463
Dr. Edward G. Hampp	WW	907	496-7621
Dr. John C. Norvell	WW	906	496-7294
Dr. Eugene J. Oliver	WW	905	496-7518
Dr. Bert I. Shapiro	WW	905	496-7518
Dr. Lee Van Lenten	WW	907	496-7621

	Bldg.	Room	Telephone
Genetics Program, Dr. Fred Bergmann, Director	WW	918	496-7087
Deputy Director, Dr. Elke Jordan	WW	910	496-7175
Scientist Administrators			
Dr. David Beck	WW	910	496-7175
Dr. Dorothea S. Miller	WW	920	496-7137
Dr. Barbara Williams	WW	918	496-7087
Dr. George W. Woolley	WW	906A	496-7309
Pharmacology-Toxicology Program			
Director (Vacancy)			
Deputy Director, Dr. Sara A. Gardner	WW	919	496-7707
Scientist Administrators			
Dr. Carl A. Kuether	WW	919	496-7181
Dr. Anthony Zavadil	WW	919	496-7181
Physiology and Biomedical Engineering Program, Dr. Leo von Euler, Acting Director	WW	926	496-7891
Dr. Frederick P. Ferguson, Program Coordinator	WW	954	496-7253
Scientist Administrators:			
Dr. Matti S. Al-Aish	WW	950	496-7081
Dr. Emilie A. Black	WW	919	496-7373
Dr. W. Sue Badman	WW	904	496-7294
Dr. Marvin Cassman	WW	903	496-7463
Dr. Robert S. Melville	WW	950	496-7081
Dr. Elizabeth M. O'Hern	WW	955	496-7047
Dr. Americo J. Rivera, Jr.	WW	952	496-7168
Dr. Bert Shapiro	WW	905	496-7518
Dr. William M. Taylor	WW	955	496-7048
Minority Access to Research Careers Program, Mr. Elward Bynum, Director	WW	9A18	496-7941
Scientist Administrator			
Dr. Winfred Harris	WW	9A16	496-7941

NIGMS in the DHEW/NIH Organizational Structure

Department of Health, Education and Welfare

Joseph A. Califano, Secretary
Hale Champion, Under Secretary

Assistant Secretary for Health

Julius B. Richmond

Public Health Service

Health Resources Administration (HRA)
Henry A. Foley
Administrator

Health Services Administration (HSA)
George I. Lythcott
Administrator

Alcohol, Drug Abuse, and Mental Health Administration (ADAMHA)
Gerald J. Klerman
Administrator

National Institutes of Health (NIH)
Donald S. Fredrickson
Director

Center For Disease Control (CDC)
William H. Foege
Director

Food and Drug Administration (FDA)
Donald Kennedy
Commissioner

Bureaus

National Library of Medicine (NLM)
Martin M. Cummings
Director

National Cancer Institute (NCI)
Arthur C. Upton
Director

National Heart, Lung, and Blood Institute (NHLBI)
Robert I. Levy
Director

Institutes

National Institute on Aging (NIA)
Robert N. Butler
Director

National Institute of Allergy and Infectious Diseases (NIAID)
Richard M. Krause
Director

National Institute of Arthritis, Metabolism and Digestive Diseases (NIAMDD)
G. Donald Whedon
Director

National institute of Child Health and Human Development (NICHD)
Norman Kretchmer
Director

National Institute of Dental Research (NIDR)
David B. Scott
Director

National Institute of Environmental Health Sciences (NIEHS)
David M. Rall
Director

National Eye Institute (NEI)
Carl Kupfer
Director

National Institute of General Medical Sciences (NIGMS)
Ruth L. Kirschstein
Director

National Institute of Neurological and Communicative Disorders and Stroke (NINCDS)
Donald B. Tower
Director

Research and Service Divisions

Clinical Center (CC)
Mortimer B. Lipsett
Director

Division of Computer Research and Technology (DCRT)
Arnold W. Pratt
Director

Division of Research Grants (DRG)
Carl D. Douglass
Director

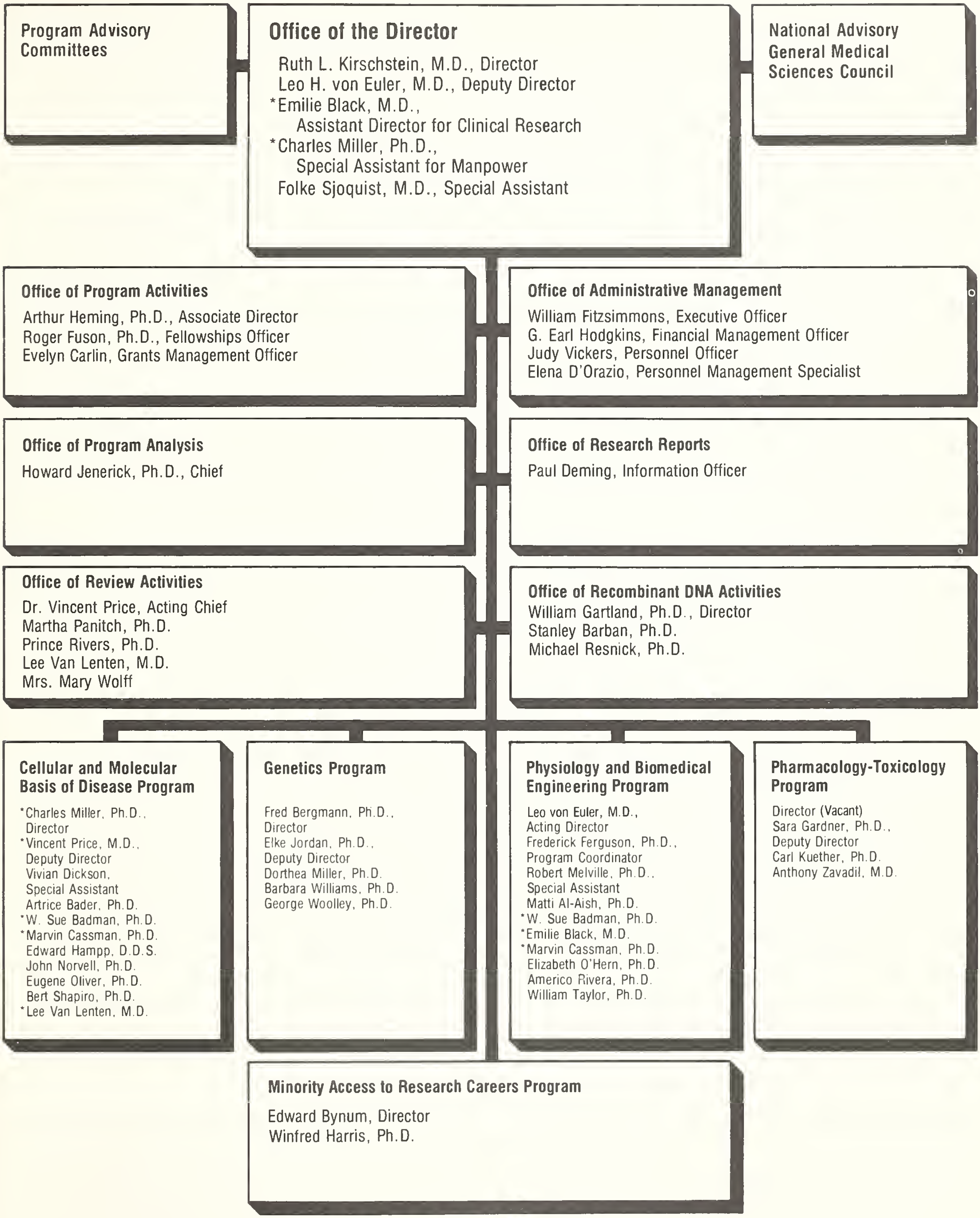
Division of Research Resources (DRR)
Thomas G. Bowery
Director

Division of Research Services (DRS)
Joe R. Held
Director

Fogarty International Center (FIC)
Leon Jacobs
Director

Organizational Structure of the NIGMS

National Institute of General Medical Sciences



Program Advisory Committees

Office of the Director

Ruth L. Kirschstein, M.D., Director
Leo H. von Euler, M.D., Deputy Director
*Emilie Black, M.D.,
Assistant Director for Clinical Research
*Charles Miller, Ph.D.,
Special Assistant for Manpower
Folke Sjoquist, M.D., Special Assistant

National Advisory General Medical Sciences Council

Office of Program Activities

Arthur Heming, Ph.D., Associate Director
Roger Fuson, Ph.D., Fellowships Officer
Evelyn Carlin, Grants Management Officer

Office of Administrative Management

William Fitzsimmons, Executive Officer
G. Earl Hodgkins, Financial Management Officer
Judy Vickers, Personnel Officer
Elena D'Orazio, Personnel Management Specialist

Office of Program Analysis

Howard Jenerick, Ph.D., Chief

Office of Research Reports

Paul Deming, Information Officer

Office of Review Activities

Dr. Vincent Price, Acting Chief
Martha Panitch, Ph.D.
Prince Rivers, Ph.D.
Lee Van Lenten, M.D.
Mrs. Mary Wolff

Office of Recombinant DNA Activities

William Gartland, Ph.D., Director
Stanley Barban, Ph.D.
Michael Resnick, Ph.D.

Cellular and Molecular Basis of Disease Program

*Charles Miller, Ph.D.,
Director
*Vincent Price, M.D.,
Deputy Director
Vivian Dickson,
Special Assistant
Artrice Bader, Ph.D.
*W. Sue Badman, Ph.D.
*Marvin Cassman, Ph.D.
Edward Hampp, D.D.S.
John Norvell, Ph.D.
Eugene Oliver, Ph.D.
Bert Shapiro, Ph.D.
*Lee Van Lenten, M.D.

Genetics Program

Fred Bergmann, Ph.D.,
Director
Elke Jordan, Ph.D.,
Deputy Director
Dorthea Miller, Ph.D.
Barbara Williams, Ph.D.
George Woolley, Ph.D.

Physiology and Biomedical Engineering Program

Leo von Euler, M.D.,
Acting Director
Frederick Ferguson, Ph.D.,
Program Coordinator
Robert Melville, Ph.D.,
Special Assistant
Matti Al-Aish, Ph.D.
*W. Sue Badman, Ph.D.
*Emilie Black, M.D.
*Marvin Cassman, Ph.D.
Elizabeth O'Hern, Ph.D.
Americo Rivera, Ph.D.
William Taylor, Ph.D.

Pharmacology-Toxicology Program

Director (Vacant)
Sara Gardner, Ph.D.,
Deputy Director
Carl Kuether, Ph.D.
Anthony Zavadil, M.D.

Minority Access to Research Careers Program

Edward Bynum, Director
Winfred Harris, Ph.D.

*Filling more than one position.

NIGMS Programs

Mechanisms of Support

Since it is the Institute's mission to support undifferentiated laboratory research by individual investigators at universities and other institutions throughout the country, grants are by far the predominant support mechanism. Contracts are used only in rare instances.

The Institute awards three major kinds of research grants: (1) research project grants; (2) program project grants; and (3) research center grants.

Research project grants are awarded to an institution on behalf of a principal investigator, for a discrete research project in the area of an investigator's interest and competence, with a single scientific focus or objective.

Any individual is eligible to apply for research grant support provided his institution officially sponsors his application. Such sponsorship assures the NIH that the institution will provide facilities necessary to accomplish the research goals and accept responsibility for judicious use and accountability for grant funds awarded.

Program project grants are awarded to an institution on behalf of a principal investigator for the support of a broadly based, often multidisciplinary, research program which has a specific major objective or basic theme. A program project involves the organized efforts of a group of investigators who propose to conduct research projects related to an overall program objective. Each project supported under a program project grant is expected to contribute to and be directly related to the common theme of the program. The grant provides support for the projects and for certain shared basic resources.

Research center grants are awarded for the purpose of bringing about collaboration between basic and clinical scientists, through the support of a group of closely interrelated research projects which are focused on solving a clearly identified biomedical research problem within one of six announced areas. The premise is that this will encourage the development of new concepts, promote the application of basic research findings to clinical problems, and allow scientific progress that would not take place through, or would only be made more slowly by, individual efforts. (See also p. 34).

Research career development awards are provided to foster the early development of scientists who have outstanding research potential for careers of independent research. Awards provide all or part of the salary of the awardee. NIGMS only accepts applications in four specified areas (See also p. 43).

Under the National Research Service Act, the NIGMS makes institutional and individual fellowship awards in specified areas (See also p. 44).

Institutional National Research Service Awards are made to domestic public or nonprofit private institutions. The applicant institution must have, or be able to develop, the staff and facilities required for the proposed program. The training program director at the institution will be responsible for the selection and appointment of trainees to receive National Research Service Awards and for the overall direction of the program.

Predoctoral trainees (except in the MARC Honors Undergraduate Program) must have received a baccalaureate degree as of the date of appointment to the approved training program. An individual at the postdoctoral level must have received a Ph. D., M.D., D.D.S., D.O., D.V.M., O.D., D.P.M., Sc.D., D. Eng., D.N.S., or equivalent domestic or foreign degree as of the date of appointment.

Postdoctoral individual National Research Service Awards may be applied for in the following areas:

Cellular and Molecular Biology:	Dr. Charles A. Miller 301/496-7021
Genetics (including Medical Genetics):	Dr. George W. Woolley 301/496-7309
Pharmacological Sciences (including Clinical Pharmacology):	Dr. Anthony Zavadil 301/496-7707
Systems and Integrative Biology (Physiology and Bioengineering):	Dr. Americo Rivera 301/496-7168 Dr. William Taylor 301/496-7048

Clinically Oriented Areas: Research training support is offered (1) to individuals with the M.D. degree who are preparing for careers in clinical research; emphasis will be placed on proposals incorporating at least two years of training within such basic science departments as biochemistry, genetics, microbiology, immunology, physiology, pharmacology, psychology, or biostatistics; (2) to individuals with the Ph. D. degree who seek competence to apply the knowledge and methods of basic biomedical disciplines to medical problems, usually in close collaboration with clinical scientists.

The following areas are represented:

Pathobiology	Dr. Edward Hampp 301/496-7621
Anesthesiology	Dr. Elizabeth O'Hern 301/496-7047
Trauma and Burn Research	Dr. Elizabeth O'Hern 301/496-7047
Clinical Laboratory Sciences	Dr. Matti Al-Aish 301/496-7001
Behavioral Sciences Related to Medicine	Dr. William Taylor 301/496-7048
Epidemiology	Dr. William Taylor 301/496-7048

MARC Undergraduate Research Training Awards:

These awards are made to eligible four-year undergraduate institutions under authority of the National Research Services Act (Section 472, Public Health Service Act; 42 USC 2891-1). Their purpose is to support research training programs for highly selected honors undergraduate students in their third and fourth years, with the objective of preparing them to compete successfully for entry into graduate programs leading to the Ph. D. in health science fields. The honors programs should be designed to improve significantly the research training capabilities of applicant institutions, providing mechanisms to augment and enhance science curricula, faculty skills and laboratory facilities. Funds are provided for essential research equipment and supplies, for stipends, tuition, fees, and limited travel costs for trainees. Arrangements should be provided for special training during summer recesses at universities and laboratories other than the grantee institutions. (--*ibid*., No. 17, September 7, 1977).

Cellular and Molecular Basis of Disease Program

The objectives of this program are to gain a better understanding of the complex structure and function of human cells and their component parts and of the interactions between cells and their surroundings with the expectation that such understanding will contribute to the ultimate control and prevention of many forms and manifestations of disease. Most diseases of the body are associated with abnormal cellular function. Inheritance of normal traits and of genetically related diseases, the phenomenon of aging, the body's response to drugs, environmental chemicals, infections, and injury are all dependent upon events occurring at the cellular level. Structural changes in cell membranes or subcellular organelles and their molecular components may seriously affect the whole organism and lead to disease. Continued success and achievement in basic research in cellular and molecular biology can be expected to contribute significantly to the diagnosis, treatment and prevention of disease.

The past score of years has seen marked progress in research on cells and their complex functions in the life processes of man. Exceptional progress in cellular and molecular biology has led to a dynamic functional picture of the cell that was only conjecture 25 years ago. As more refined biochemical, immunological, and electron microscopic techniques have evolved, a more complete knowledge of the fine structure of cells and their subcellular organelles has emerged. The Cellular and Molecular Basis of Disease (CMBD) Program provides a central point within NIH to which the scientists conducting research at the cellular and molecular levels can apply for research and training support. The CMBD Program supports research ranging from investigations on the physical-chemical properties of water and the structure and function of proteins and other macromolecules within cells to the detailed fine structure and function of cell organelles and the behavior of living cells -- using model cell systems that range from microorganisms to man. Currently much attention is being focused on the characterization of protein constituents of cell membranes using an array of chemical and physical techniques.

The bulk of all research sponsored by the CMBD Program is supported through the mechanism of the regular research grant awarded to institutions for the support of individuals selected through peer review of investigator-initiated proposals. In addition, the program supports molecular pathology centers which are conceived as bringing together, under the focus of a general pathologic problem, several basic and clinical science disciplines and approaches in the study of disease.

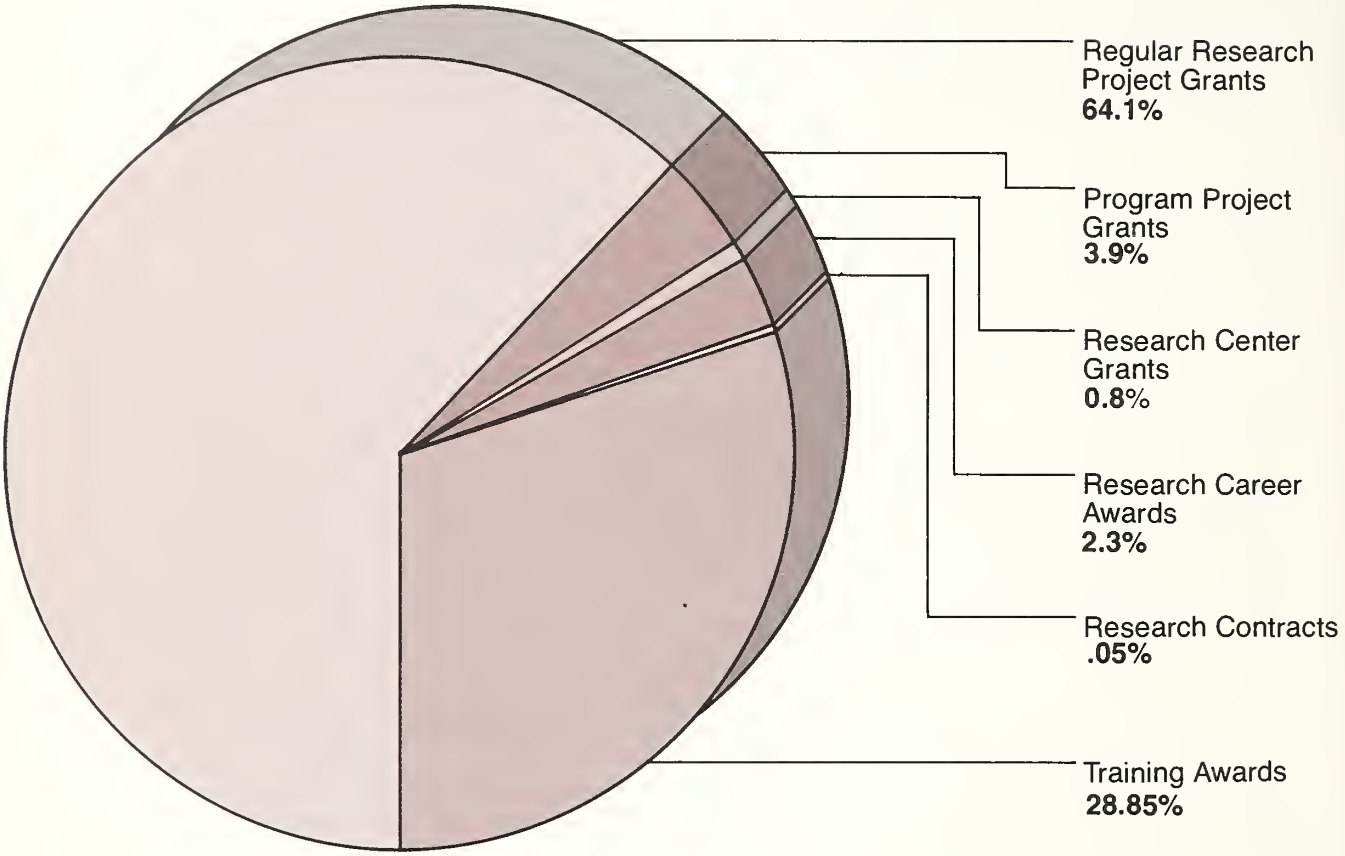
Research Training

About one half of the overall research training programs of the Institute is sponsored by the CMBD Program. Emphasis is placed on multidisciplinary research training at the predoctoral level in the broad range of the cellular and molecular sciences. The training grant mechanism is used to provide stipends for highly qualified Ph. D. degree candidates to pursue doctoral thesis research projects with faculty research mentors in academic departments ranging from anatomy and biochemistry to pathology and zoology. Postdoctoral trainees, in significantly fewer numbers, are also supported via training grants in the area of basic pathobiology, drawing upon faculty from a wide range of collaborating basic science and clinical departments.

A separate, special category of predoctoral training grants for the Medical Scientist Program is available to medical schools and associated graduate schools for support of candidates for the M.D./Ph.D. degree. These trainees have access to thesis research opportunities in all the biomedical and health related sciences represented at the respective grantee institutions. Twenty-three such grants are currently active with 600 full time trainees enrolled with stipend support. While this special research training activity is administered through the CMBD Program, the fields of training offered encompass and serve all areas of biomedical research.

Cellular and Molecular Basis of Disease Program: Obligations by Budget Mechanism

Total Fiscal Year 1978 Obligations—$78,055,000



Budget Mechanism	**Obligated Dollars**
Regular Project Grants	$49,993,000
Program Project Grants	3,072,000
Research Center Grants	604,000
Research Career Awards	1,794,000
Training Programs:	
Individual Fellowships	1,384,000
Institutional Fellowships	21,167,000
Research Contracts	41,000
TOTAL PROGRAM	*$78,055,000*

Genetics Program

This program is directed towards gaining a better understanding of the fundamental processes and mechanisms of inheritance in health and disease. Its objectives are the prevention and improved treatment of genetic ills in man, including multifactorial diseases with a strong hereditary component, such as diabetes, atherosclerosis, hypertension, and schizophrenia. The various categorical NIH institutes are concerned, appropriately, with individual genetic diseases as discrete research problems requiring a specific approach and resolution. In contrast, the NIGMS Genetic Program attempts to exploit broadly strategic research opportunities which may yield generalizable concepts. Supported research ranges from studies on nucleic acid chemistry to population genetics. Topics include the organization, transmission, and expression of genetic information. Lower organisms, such as bacteria, are used as model systems to elucidate basic genetic principles. At the other end of the spectrum, the techniques of mammalian cell culture are being exploited for the mapping of human genes and for the study of basic biochemical defects underlying human genetic diseases.

Genetics Research Centers

This centers program was established to foster interaction among scientists involved in basic and clinical research. The centers facilitate broadly based research that is likely to contribute significantly to the solution of human disease problems. New ideas and progress are engendered by familiarizing basic scientists with specific human genetic problems. The concept includes basic laboratory investigation and clinical research as each relates to the overall goals.

Research Training

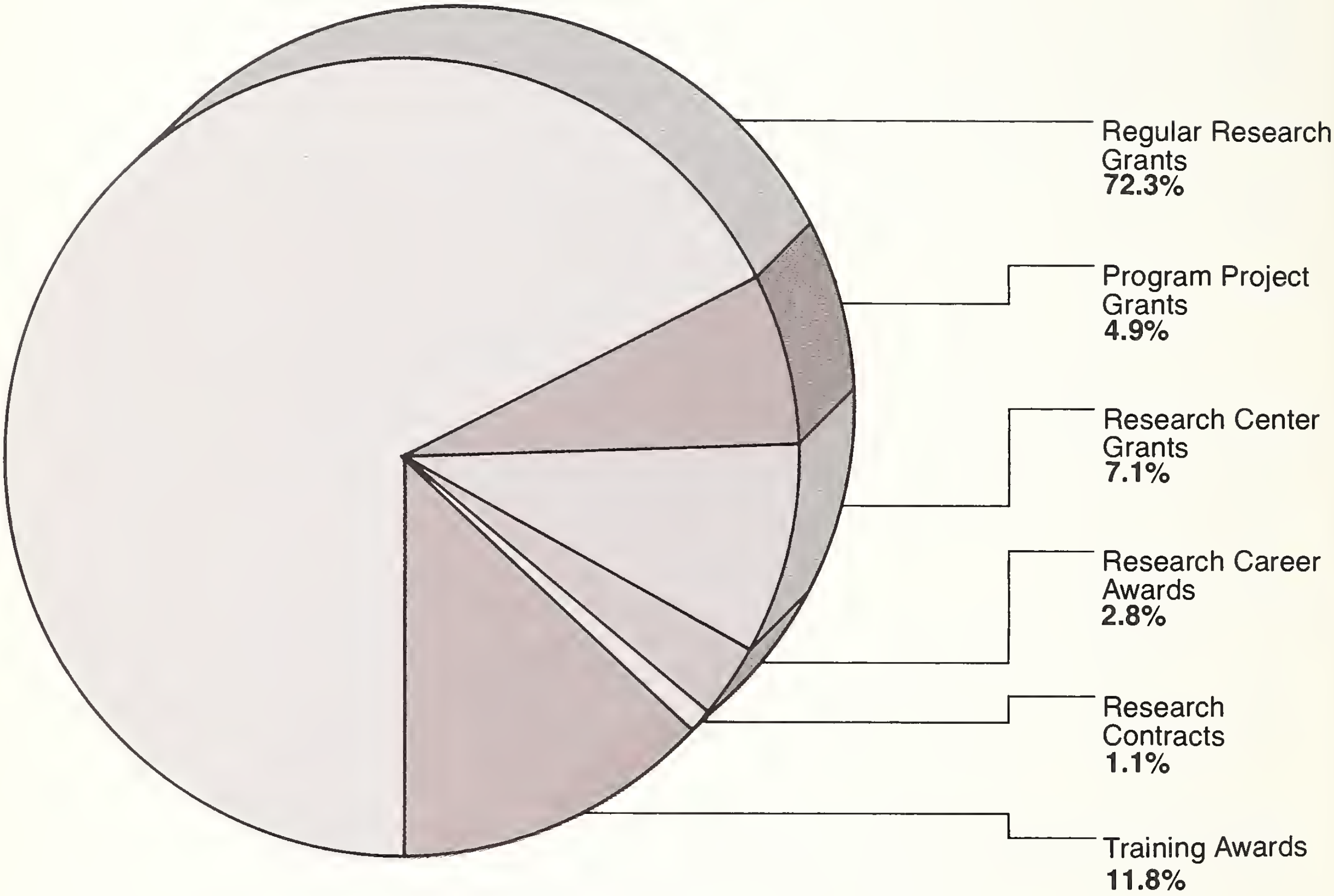
Institutional predoctoral programs emphasize research on the principles and mechanisms of genetics, with collaboration of faculty members representing a number of disciplines and research areas which may include chemistry, biochemistry, cell regulatory processes, population and behavioral aspects of heredity, and developmental biology.

Institutional postdoctoral programs (with emphasis on medical genetics) provide advanced and special research training in genetics, applying principles and fundamental mechanisms of genetics toward an understanding of human genetic disease. Trainees may be drawn from diverse biological and medical backgrounds for research with faculty representing various approaches to genetic research - ranging from biochemical genetics to human population genetics.

Individual postdoctoral awards are made for research training that focuses on the principles and mechanisms of genetics, to further understanding of genetic processes in general and of human genetic disease. Applicants may propose research and study with investigators representing various approaches to genetics, including biochemical, developmental, regulatory, population and clinical aspects of heredity.

Genetics Program: Obligations by Budget Mechanism

Total Fiscal Year 1978 Obligations—$75,182,000



Budget Mechanism	**Obligated Dollars**
Regular Project Grants	$54,380,000
Program Project Grants	3,685,000
Research Center Grants	5,370,000
Research Career Awards	2,093,000
Training Programs:	
Individual Fellowships	1,704,000
Institutional Fellowships	7,139,000
Research Contracts	811,000
TOTAL PROGRAM	*$75,182,000*

Pharmacology – Toxicology Program

The Pharmacology-Toxicology Program supports all aspects of drug-related research from synthesis and development of new pharmacological active chemical structures, through elucidation of mechanisms and sites of action of drugs to improving the clinical use of drugs. Significant contributions continue to be made in the development of new molecular structures and in the understanding of the mechanisms and sites of therapeutic and toxic effects of drugs and chemicals. New information on the disposition of drugs is continually aiding the assessment of therapeutic effectiveness and safety in man. The program also supports biorelated chemistry, including the chemistry of natural products, chemical aspects of biological processes, relationships between chemical structure and biological activity, medical chemistry and chemical methodology. Increasing attention is being given clinical, especially pediatric, pharmacology and on the development of new methodology and analytical techniques.

Most of the research endeavors funded by the Pharmacology-Toxicology Program are regular research grants initiated by individual investigators. A few program projects, involving collaborative endeavors of several investigators with closely related interests, are also supported as well as centers.

Pharmacology-Toxicology Research Centers

University-based, multidisciplinary research centers in pharmacology and toxicology encompass most, if not all, of the flow of basic information from the laboratory to its ultimate application in man. Chemists, toxicologists, computer scientists and clinical specialists in diverse areas participate, in addition to pharmacologists.

Research Training

Institutional predoctoral training programs in pharmacological science emphasize the acquisition of broad competence in the fields of pharmacology and toxicology, and include collaborative research and thesis opportunities in such disciplines as biochemistry, genetics, physiology, and the neuro- and behavioral sciences as well as in pharmacology.

Institutional and individual postdoctoral training support emphasizes research training in clinical pharmacology. Individuals receive experience in the methodology and conduct of clinical research to qualify them to investigate the effects and the mechanisms of drug actions in humans. Trainees, who usually hold the M.D. degree, are expected to acquire fundamental scientific knowledge and research techniques in areas such as basic pharmacology, biochemistry, physiology, and analytical methodology, to complement their clinical experiences.

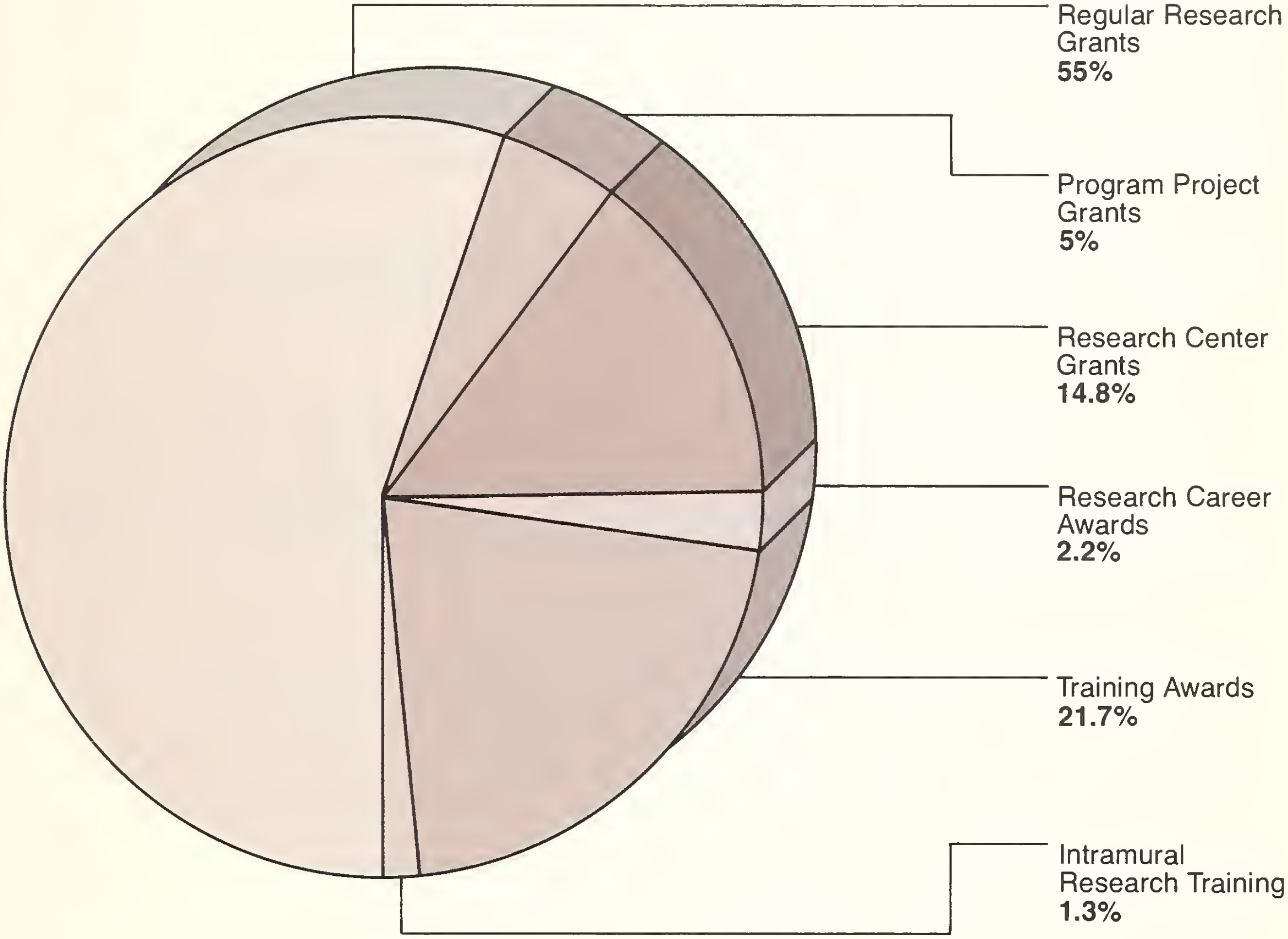
Individual postdoctoral awards are also made for specialized research training in the molecular and cellular aspects of pharmacology.

The Institute's only intramural NIH activity, the Pharmacology Research Associate Program, offers a postdoctoral research experience to promising investigators in the clinical or basic sciences. The program is intended for those who have shown a commitment to pharmacology or toxicology by virtue of prior training or research, and for those with backgrounds in clinical medicine or basic science who wish to acquire specialized experience in the field of pharmacology. Qualified individuals receive two years of postdoctoral training in one of the laboratories of the various institutes comprising the National Institutes of Health.

Research career development awards are offered only to individuals who wish to develop a research career in clinical pharmacology.

Pharmacology — Toxicology Program: Obligations by Budget Mechanisms

Total Fiscal Year 1978 Obligations—$27,747,000



Budget Mechanism	Obligated Dollars
Research Project Grants	$15,252,000
Program Project Grants	1,375,000
Research Center Grants	4,105,000
Research Career Awards	616,000
Training Awards:	
Individual Fellowships	305,000
Institutional Fellowships	5,715,000
Intramural Research Training	379,000
TOTAL PROGRAM	*$27,747,000*

Physiology and Biomedical Engineering Program

The goals of this program are to broaden and strengthen the scientific base of medical research in certain areas, and to foster the application of physics and engineering science to the solution of significant physiological problems.

Trauma and burn research is directed to the discovery of better ways to prevent death from injury, mitigate pain, speed recovery of patients, and lessen the extent of disabilities caused by injuries. Greater understanding of the total body response to trauma is sought. This includes the biochemical and physiological changes induced by trauma, including burns, and the fundamental aspects of wound healing and biological repair. Attention is also given to research on the treatment of post-traumatic infections, the nutritional requirements of convalescing victims, and rehabilitation of injured patients.

In addition to individual research grants, the program supports multidisciplinary centers for trauma and/or burn research. These centers facilitate the rapid clinical application of basic laboratory investigations and provide environments for active research training.

Research in anesthesiology is concerned with the mode of action of anesthetics and muscle relaxants, the nature and control of pain, basic physiologic and metabolic changes resulting from anesthesia, the interaction of anesthetics with other agents, and the management of respiratory failure. This program effort also involves the support of multidisciplinary anesthesiology research centers which foster collaboration among pharmacologists, physiologists, and anesthesiologists, and seek to broaden the scientific base of anesthesiology.

The biomedical engineering component of the program supports the application of engineering knowledge to the solution of significant physiological and biomedical problems and is also directed to the development of new instruments and devices for use in laboratory research and in medicine. Some important basic goals are to enhance the exploration of life processes at molecular levels, and to apply engineering control theory to studies of physiological processes. Such work encompasses the development of new systems for data acquisition and display using new types of transducers and integrated circuitry, and the development and application of mathematical models of physiological systems to predict more accurately and rapidly the clinical status of acutely ill patients. Research in areas of biomechanics, patient monitoring and the biological effects of various forms of external wave energy are also supported.

Support for multidisciplinary and/or multidepartmental centers for biomedical engineering research is intended to stimulate and exploit the growing relationship between engineering, biology and medicine, and to provide a scientific focus in such areas as instrumentation research and devleopment, biomaterials, physiological systems analysis, and biomechanics.

Research Training

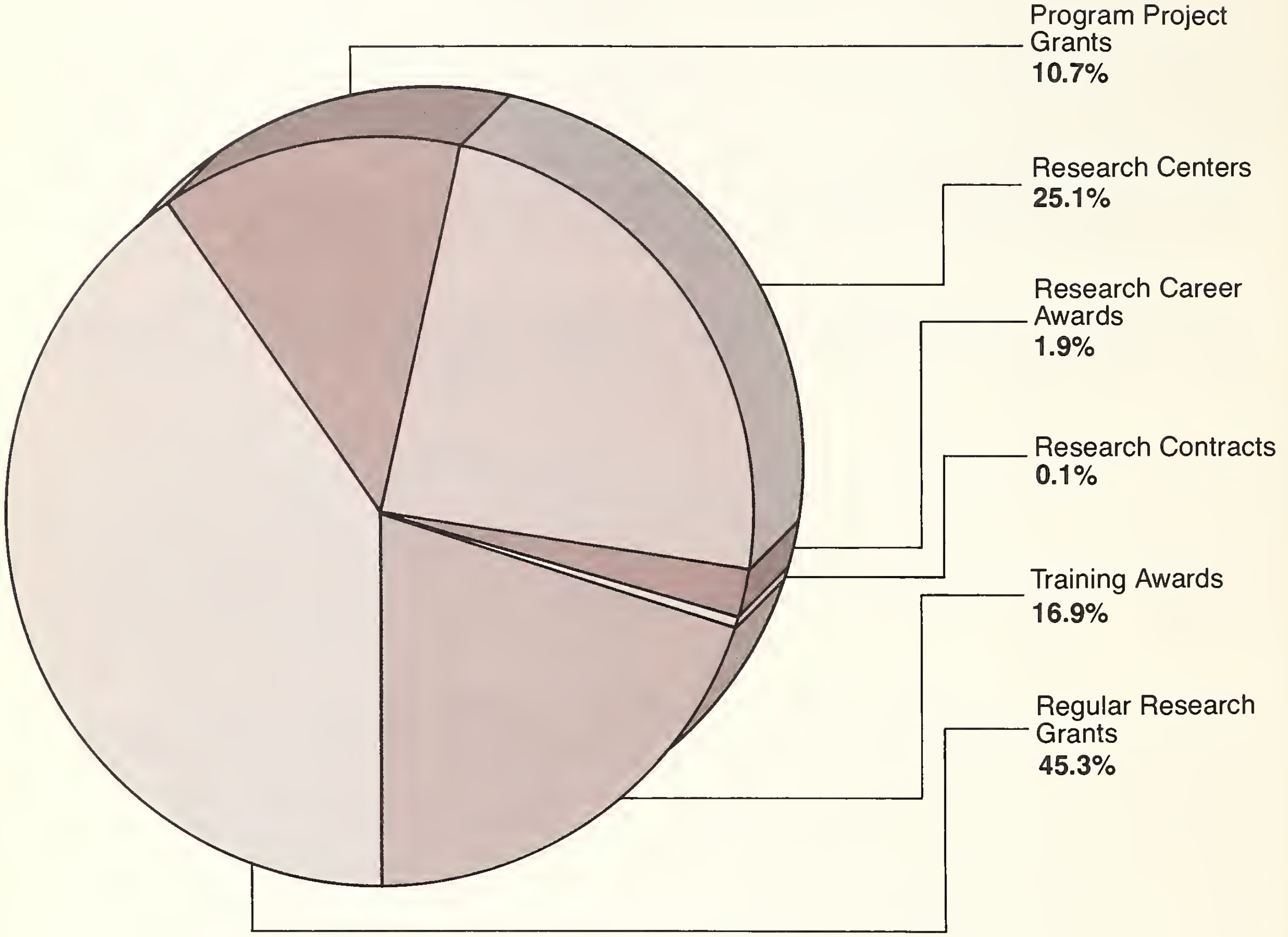
Institutional predoctoral training support is directed toward building broad research competence required to investigate integrative, regulatory, and developmental functions of higher organisms and their organ systems. The training program should bring together components of various resources and approaches of such disciplines/departments as physiology, bioengineering, biomathematics, nutrition, anatomical sciences, and the neurobehavioral sciences, so as to produce graduates well versed in quantitative approaches to biology.

Institutional postdoctoral awards are provided for training in anesthesiology and in trauma and burn research. With regard to the former, multidisciplinary research training should enhance the trainee's capability of advancing our knowledge of the body's complex reactions to trauma and burn injuries, and the supervisory staff should include trauma surgeons and/or burn specialists as well as basic scientists. Emphasis is placed on basic research training in such areas as biochemistry, physiology, immunology, and microbiology. In anesthesiology, support is offered to individuals with the M.D. degree who seek a better understanding of the fundamental mechanisms of anesthesia and pain and their effects on the body at the level of the organ systems as well as at the cellular and molecular levels. Accordingly, it is expected that the trainee would spend at least two years in such basic science departments as physiology, pharmacology or biochemistry.

Research career development awards are offered in the fields of biomedical engineering, trauma-burn research, and anesthesiology. Support is reserved for individuals who wish to bridge the gaps between the basic and clinical sciences.

Physiology and Biomedical Engineering Program: Obligations by Budget Mechanisms

Total Fiscal Year 1978 Obligations $38,980,000



Budget Mechanism	**Obligated Dollars**
Regular Project Grants	$17,624,000
Program Project Grants	4,189,000
Research Center Grants	9,801,000
Research Career Awards	740,000
Training Programs:	
Individual Fellowships	114,000
Institutional Fellowships	6,471,000
Research Contracts	41,000
TOTAL PROGRAM	*$38,980,000*

Minority Access to Research Careers Program

The Minority Access to Research Careers (MARC) Program is committed to increasing the numbers and capabilities of ethnic minority individuals engaged in biomedical research and teaching. This mandate is limited to minority groups currently identified as being under-represented in the Nation's health sciences: American Indians, Blacks, Hawaiians, Mexican Americans, and Puerto Ricans. Authority for the MARC Program derives from the National Research Service Act.

MARC Faculty Fellowships are awarded to selected full-time faculty members of four-year colleges, universities and health professional schools in which student enrollment is drawn substantially from ethnic minority groups. The faculty awards may be for either predoctoral or postdoctoral levels of training, with annual stipends ranging upward to $25,000 consistent with the applicant's institutional salary. Applicants must be nominated by their institutions and are expected to return to do research and teach at the sponsoring institution after completion of the fellowship.

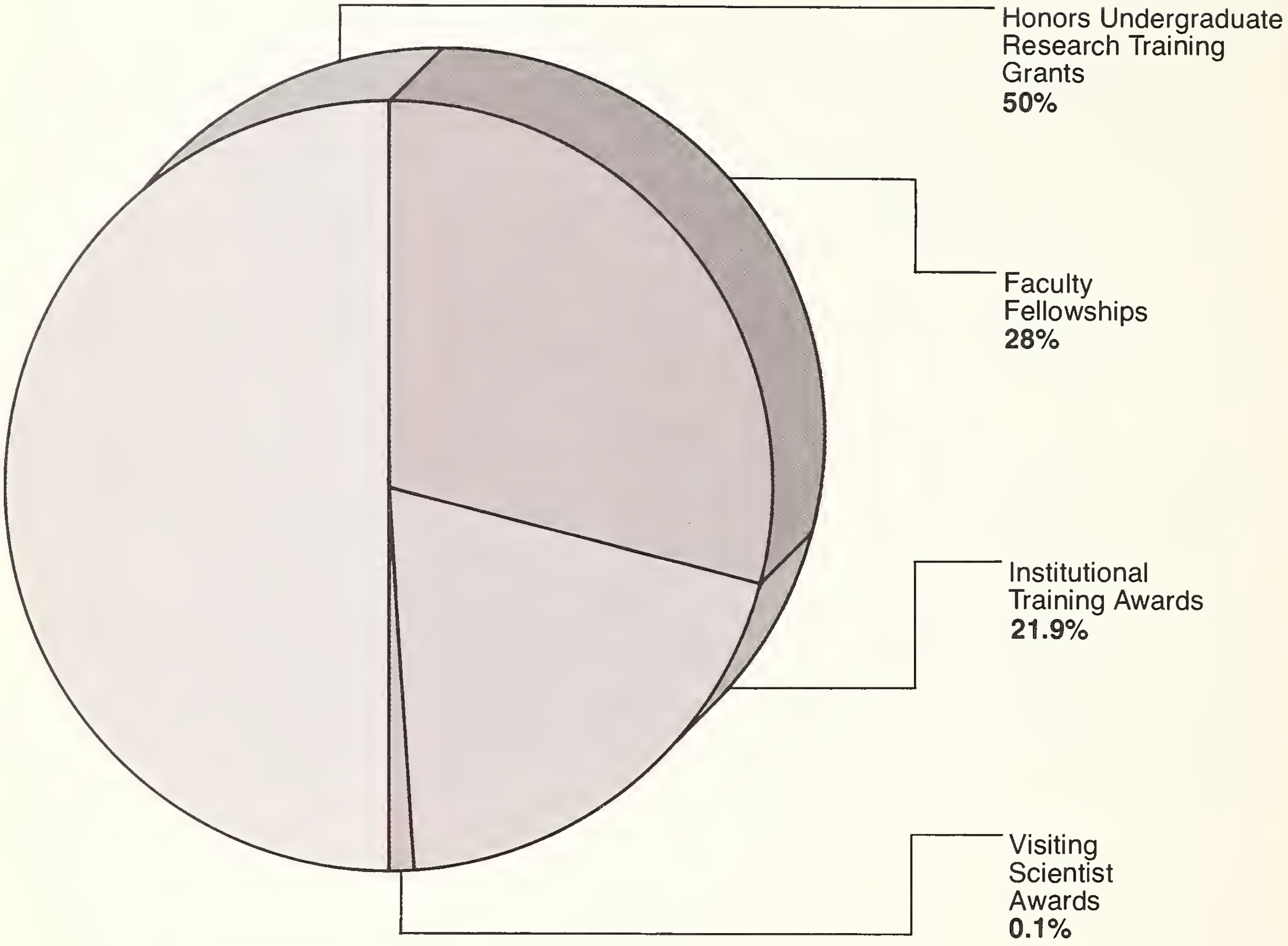
The MARC Visiting Scientist Fellowship is awarded for a period of 3 to 12 months to help outstanding scientist-teachers serve as visiting scientists at eligible minority institutions. Stipends are determined on an individual basis.

In addition, MARC Honors Undergraduate Training Grants are awarded to eligible undergraduate institutions to increase the number of well prepared minority students who can compete successfully for entry into graduate programs leading to the Ph. D. degree in a biomedical science. Support is provided to strengthen both the science curriculum and student research opportunities, and to defray trainee tuition and living costs.

MARC endeavors supported by the NIGMS are those that are consistent with the Institute's overall mission and fields of primary scientific concern. The MARC Program also collaborates with various other Institutes in awarding support for projects in accord with their missions and programs. Such collaboration is in effect with the National Cancer Institute, National Heart, Lung, and Blood Institute, National Institute of Allergy and Infectious Diseases, National Institute of Child Health and Human Development and the National Institute on Aging.

Minority Access to Research Careers Program: Obligations by Budget Mechanisms

Total Fiscal Year 1978 Obligations—$2,571,261



Budget Mechanism	Obligated Dollars
Honors Undergraduate Research Training Awards	$1,285,228
Faculty Fellowships	720,214
Institutional Training Awards	563,981
Visiting Scientist Awards	1,838
TOTAL PROGRAM	*$2,571,261*

Special Program Announcements

Special Announcements

The NIH Guide for Grants and Contracts, a news-letter type publication, is issued periodically by the National Institutes of Health to convey policy and administrative information and to help interested individuals and organizations stay abreast of new requirements and changes in grant and contract activities administered by component institutes and divisions.[1]

The Guide is thus used by the NIGMS to communicate changes or additions to the Institute's established programs. Key announcements, currently in effect, are summarized below, with reference to the specific issues of the Guide in which they originally appeared.

Support of Research Centers and Program Projects:

The NIGMS has issued new guidelines setting forth the purposes and requirements of the Institute in considering and awarding support for research center and program project applications.

The purpose of NIGMS research center grants is to bring about collaboration between basic and clinical scientists, through the support of a group of closely interrelated research projects which are focused on solving a clearly identified biomedical research problem within one of the fields specified below. The premise is that this will encourage the development of new concepts, promote the application of basic research findings to clinical problems, and allow scientific progress that would not take place through, or would only be made more slowly by, individual efforts.

A research center grant is not intended to continue indefinitely but is awarded to achieve a specific goal. Therefore, a center grant may be renewed only until it has achieved its stated purpose and provided only that high levels of scientific merit and coherence are maintained. Support of scientifically meritorious components may, of course, be sought under other mechanisms, such as program project or individual project grants.

The purpose of NIGMS program project grants is to permit investigators with differing expertise to collaborate in research on specific scientific problems that might be approached in a multidisciplinary manner. The program project grant is intended for situations where investigators wish to pool their resources and talents in order to solve particular scientific problems more expeditiously. The Institute will consider applications for support of such investigator-initiated research when it falls within one of its four research program areas. Program project grants are generally smaller and less complex and the number of projects and responsible investigators involved will be fewer than in research center grants.

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[1] Persons wishing to receive the GUIDE, which is distributed free, may do so by writing to the Grants and Contract Guide Distribution Center, Division of Research Grants, NIH, Room 219, Westwood Building, Bethesda, Maryland 20014.

It is recognized that much scientific collaboration can be accomplished without a special support mechanism and, where this is the case, regular research project grants will be used.

Research Center Grant Applications:

Special emphasis areas of the NIGMS in which research center grant applications will be accepted and the officials to contact are:

a - Anesthesiology - Program Director, PBME - (301) 496-7001
b - Trauma and Burns -Program Director, PBME - (301) 496-7001
c - Biomedical Engineering - Program Director, PBME -496-7001
d - Pharmacology/Toxicology - Program Director, P/T - (301) 496-7707
e - Genetics - Program Director, GEN - (301) 496-7087
f - Molecular Pathology - Program Director, CMBD - (301) 496-7021

Prospective applicants for NIGMS research center grants (both new and renewal) are required to submit a letter of intent to the appropriate NIGMS Program Director (see above) prior to submission of a formal application. Since it is recognized that the preparation of applications for large, multi-investigator grants requires substantial investment of time, effort, and resources by the center director, the associated investigators, and the grantee institution, consultation with NIGMS staff before submission of such applications will allow a determination as to whether the proposed research and mechanism fit the needs and mission of the NIGMS.

The letter of intent should include a concise description of the proposed research to be conducted under the center grant. The description should indicate: 1) how a research center grant would fulfill the above stated purpose of an NIGMS center grant; 2) the scientific focus or unifying theme; 3) the research goals with identification of the proposed individual projects; 4) the overall goal and how each individual project will contribute to it; 5) the names and curricula vitae of responsible investigators; 6) existing research resources and requested renovations; and 7) an estimate of the necessary level of support.

The letter of intent should be submitted at least three months in advance of the receipt date for applications to allow adequate time for consultation with and review by NIGMS program staff prior to preparation and submission of a formal application (see Application Receipt Dates).

> NOTE: Applications (including competing renewals) received without a prior letter of intent showing evidence of responsiveness of the proposed research center grant application to this announcement will be returned to the applicant organization in care of the proposed center director.

If notified that the proposed research center grant program would be appropriate to NIGMS, the applicant should submit the proposal on the regular research grant application form PHS 398. Each research center grant must have a director who assumes responsibility for and is knowledgeable of all the investigations proposed within the center.

Since limited resources are available through the NIGMS research centers program, collaborative efforts with investigators who are not a part of the center grant are encouraged and expected.

Indeed, the number of responsible investigators to be supported under the center grant application must necessarily be limited in order to assure the appropriate close collaboration. This number cannot be specified but it would generally not exceed eight.

In order for NIGMS to maintain an appropriate balance between the size of its center grants program and that of its regular research grants program, the size of each center grant will be evaluated very carefully.

Although no specific limitation can be placed on any one research center grant award, NIGMS expects that the budget will not exceed a level of about $500,000 (Direct Costs Only) a year.

Applications must meet the NIGMS standards for scientific merit both in regard to the overall center program and the individual projects. Awards for research center grants will be made for an initial period of five years. Renewal awards are contingent on evidence at the time of review of 1) continued need for a center grant in order to accomplish effective collaboration in the study of a clearly identified biomedical research problem, and 2) the highest scientific merit of each individual project as well as of the overall program.

Application Receipt Dates:

The receipt dates for new grant applications are June 1, October 1, and February 1. The earliest possible award dates will be approximately nine months after receipt dates. Applications received too late for one cycle of review will be held for the next. (NIH Guide to Grants and Contracts, Vol. 7, No. 4, March 10, 1978).

Special Grants for New Investigators in Anesthesiology:

These awards are made to

- encourage new investigators in the field of anesthesiology to develop their own research on: the mode of action of all types of anesthetics and muscle relaxants; basic studies on the physiologic, biochemical, pharmacologic, and metabolic effects of anesthetic agents; the nature and control of pain; postoperative respiratory failure; obstetrical and neonatal resuscitation; and the pulmonary and systemic effects of drowning.

- facilitate the transition from research training status to that of a new productive investigator.

This program is to provide the initial support for independent research by talented physicians who wish to address the challenging research problems presented by anesthesiology.

Criteria For Eligibility:

The research project must:

- be a study designed to answer a specific question related to anesthesiology in basic scientific areas such as physiology, biochemistry, pharmacology, and metabolism;

- not be supplemental to a project supported by other funds;

- be designed for completion within the requested period and not more than three years; and

- meet the customary criteria of scientific merit.

The investigator must:

- have an M.D. degree at the time of the award;

- present evidence of prior research experience;

- not be the recipient of an NIH Special Fellowship, nor the principal investigator on a research grant or contract or the equivalent, either at present or in the past, nor actively supported on a research center grant; however, trainees or regular research fellows are not excluded;

- be a citizen or a non-citizen national of the United States or its possessions and territories, or have been lawfully admitted to the United States for permanent residence prior to signing the grant application;

- provide a well-thought-out plan for pursuing the research proposed, including a brief review of the pertinent literature;

- submit with the application the names of three persons who are present or past supervisors or preceptors and who can attest to the applicant's ability to undertake the project;

- agree to devote at least 50 percent time to the project;

- agree to keep the NIGMS informed about scientific accomplishments, change in professional status, or institutional affiliation for a period of six years after termination of the grant.

The applicant institution must (for the period of the grant):

- provide space and facilities necessary to pursue the projects,

- offer expert guidance and counsel in anesthesiology research,

- release the award recipient from other responsibilities for the time devoted to the project.

Institutions may submit more than one application. Only domestic institutions may apply.

Support Provided By The Grant:

The NIGMS Special Grants for New Investigators are made for a period of up to three years. Renewals will be considered as competing continuations in the regular research grant category. Supplemental applications will not be accepted. The total direct costs may not exceed $90,000 for the three-year period with no more than $35,000 of that amount for the first year.

Except where otherwise indicated in this announcement, the policies which apply to research project grants apply also to the Special Grants for New Investigators in Anesthesiology.

> Personnel--salary and fringe benefits for the award recipient to the extent that they reflect the time or effort devoted to the research project, not to exceed 70% of the total direct costs per year. One part-time technical assistant may receive salary from the grant if the need for technical assistance can be justified in terms of the research.
>
> Equipment--the facilities available should provide most of the equipment. The purchase of equipment essential to the specific research effort must receive special approval.
>
> Supplies--the cost of necessary supplies must be detailed and justified.
>
> Travel--expenses for attendance at one national meeting closely related to the project may be requested for each 12-month period.
>
> Other Expenses--if other items are necessary for performance of the research effort, these must be clearly justified in terms of that need.
>
> Indirect Costs--will be provided in accordance with established DHEW policies for regular research grants.

Applications must be submitted by the regular new research project grant dates: November 1, March 1, and July 1. Applications received too late for one round of review will be considered in the next round. Applicants will be informed of the results of the review shortly after final consideration by the National Advisory General Medical Sciences Council.

Further information about this program may be obtained by contacting: Dr. Elizabeth M. O'Hern, National Institute of General Medical Sciences, Room 955, Westwood Building, 5333 Westbard Avenue, Bethesda, Maryland 20014, Telephone (301) 496-7168. (--*ibid*, Vol. 5, No. 15, September 15, 1976).

Special Grants for New Investigators in Trauma and Burn Research:

These grants are similar to the special grants for new investigators in anesthesiology, and must meet similar criteria. These grants are intended to:

- encourage new investigators in the field of Trauma and Burn research to develop their own research on the pathophysiology of trauma. The research should be directed to the discovery of better ways to prevent death from injury, mitigate pain, speed recovery of patients, and lessen the extent of disabilities. A better understanding of the body's total response to trauma, including burns, is sought. This includes fundamental studies on sequential organ failures, nutritional requirements, wound healing, infection, and rehabilitation of injured patients (--ibid., Vol. 6, No. 11, June 3, 1977).

Pediatric Clinical Pharmacology Grant Applications Sought:

NIGMS encourages proposals for studies in the following general areas: 1) distribution and metabolism of therapeutic drugs in children; 2) elucidation of differences in the pharmacological effects of drugs between children and adults; and 3) development of analytical and statistical methodology especially applicable to the study of pediatric patients. Studies employing protocols for the investigation of the pharmacology of drugs in children receiving those drugs for therapeutic indications are of special interest. Studies in animals or in other model systems are, in response to this announcement, of lesser interest. The primary interest of NIGMS is in the pharmacology of therapeutic drugs in the immature human. Factors influencing specific diseases of childhood are of secondary interest. (--ibid., Vol. 5, No. 10, July 12, 1976).

NIGMS Research Career Development Awards:

The Institute will accept applications for Research Career Development Awards only on behalf of individuals who wish to develop a career directed to bridging the gap between basic and clinical sciences in one of the following fields: 1) Clinical Pharmacology, 2) Trauma and/or Burn Research, 3) Anesthesiology, 4) Biomedical Engineering.

Candidates for the award should provide documentary evidence that they have a high potential for a productive research career but require additional experience in an active research environment before they can launch careers as independent scientists. Since the rank of associate professor or the successful competition for more than one substantial research grant usually indicates that the candidate has been judged to be an independent investigator, preference in selection of NIGMS awardees will be given to individuals whose achievement at the time of application has not so been recognized. (--ibid., Vol. 5, No. 11, June 3, 1977).

National Research Service Awards:

These are made and administered by NIGMS through its five operating programs and are intended to provide a research manpower resource essential to accomplish the objectives of these programs.

Institutional Awards:

It is the Institute's goal in the predoctoral programs to provide trainees broader access to thesis research opportunities across discipline and department lines while not sacrificing the standards of depth and creativity characteristic of the best Ph. D. programs. Cooperative involvement of faculty members from several departments as thesis research mentors is considered evidence for such breadth.

Programs for postdoctoral trainees should offer a wide range of research training opportunities. For individuals holding the Ph. D. degree, training should focus on advanced and specialized areas of research and offer appropriate opportunities to study clinical problems. For trainees holding a professional degree, at least two years of rigorous research training should be provided which is usually best accomplished in basic science departments.

The applicant is expected to present a detailed plan for the proposed training as well as criteria for trainee selection and mechanisms for quality control. The application should also give information on the qualifications of the proposed faculty participants, including their experience as trainors and their current research programs and support.

Separate applications for support of predoctoral and postdoctoral research training are required. In general, only one award in each of the ten areas listed below will be made to an institution. Further information regarding dates of application and notification, tenure, stipends, trainee eligibility, and required payback provisions may be found in the NIH Guide for Grants and Contracts, Vol. 6, No. 2, January 12, 1977.

For general information about these institutional NRS Award Programs, contact Dr. Charles Miller, Training Officer, National Institute of General Medical Sciences, Bethesda, Maryland 20014, telephone (301) 496-7022. Before preparing an application, applicants are strongly urged to contact the indicated staff member for the specific area.

Predoctoral:

Cellular and Molecular Biology:	Dr. John C. Norvell 301/496-7294
Genetics:	Dr. Dorothea S. Miller 301/496-7137
Pharmacological Sciences:	Dr. Sara A. Gardner 301/496-7181
Systems and Integrative Biology:	Dr. Bert Shapiro 301/496-7518
Medical Scientist Training Program:	Dr. Vincent E. Price, 301/496-7563

Postdoctoral:

Basic Pathobiology:	Dr. Edward G. Hampp 301/496-7563
Genetics (with emphasis on Medical Genetics):	Dr. Dorothea S. Miller 301/496-7137
Clinical Pharmacology:	Dr. Anthony Zavadil 301/496-7077
Trauma and Burn Research:	Dr. Elizabeth M. O'Hern 301/496-7047
Anesthesiology:	Dr. Elizabeth M. O'Hern 301/496-7047

Individual Awards:

The National Institute of General Medical Sciences is currently accepting applications from eligible individuals who seek biomedical research training in the areas specified below.

Information regarding dates of application and notification, tenure, stipends, eligibility, and payback requirements may be found in the NIH Guide for Grants and Contracts, Vol. 6, No. 20, November 14, 1977.

For additional general information about the individual National Research Service Awards, contact Dr. Roger Fuson, Fellowships Officer, National Institute of General Medical Sciences, Bethesda, Maryland 20014, telephone (301) 496-7368. For information specific to the listed program areas, call the indicated staff member.

The stipend level for predoctoral trainees is $3,900 per annum. The stipend level for postdoctoral trainees is determined by the number of years of relevant postdoctoral experience at the time of appointment, starting at $10,000 per annum.

In addition to stipends, the applicant institution may request tuition, fees, and travel costs for trainees; actual indirect costs or 8 percent of allowable direct costs, whichever is less; and up to 25 percent of the total award for related institutional costs such as staff salaries, equipment, supplies, etc.

Institutional grants may be made for project periods of up to five years and may be renewable. However, no individual predoctoral NRS awardee may receive more than five years of support in the aggregate except upon individual waiver.

Upon completion of their training under the program, recipients of NRS Awards are expected to engage in biomedical research or teaching. From individuals who do not satisfy this intent, the United States is entitled to recover an amount equal to the stipend received from the NIH.

Individual National Research Service Awards may be made to individual postdoctoral applicants for research training in specified areas of science. Awardees are selected as a result of national competition. Prior to application each applicant must arrange for acceptance by a sponsor and by an appropriate institution or a unit of NIH that has the staff and facilities suitable to provide the proposed training. The major emphasis of the application must be the training experience and broadening of scientific competence to be gained.

As of the beginning date of the proposed training program, the candidate must have received a professional or scientific doctoral degree, such as the M.D., Ph. D., D.D.S. D.O., D.V.M., Sc.D., D. Eng., D.N.S., O.D., D.P.M., or equivalent degree.

Applicants must be citizens or noncitizen Nationals of the United States or have been lawfully admitted to the United States for permanent residence at the time of application.

Although NRS Awards are made for 12-month periods, assurance may be given by the awarding unit for continued support beyond the first year to a maximum of three years, provided that progress is satisfactory and funds are available.

Upon completion of the program, recipients of NRS Awards are required to engage in biomedical research or teaching. From individuals who do not satisfy this intent, the United States is entitled to recover an amount equal to the stipend received from the NIH.

Grants and Contracts Review

NIH-NIGMS Applications Review Process

Grant applications submitted to the NIH are received by the Division of Research Grants (DRG) and are subjected to a peer review process. In DRG the applications are assigned by the Referral Branch to the appropriate Institute(s) and to a scientific or technical advisory group, usually a DRG study section, for assessment of scientific and technical merit. Some applications, particularly large or complex ones for research centers, program projects and research training grants, are given initial merit review by peer review groups administered by the various institutes. NIH public advisory groups are listed in the semiannual publication, NIH PUBLIC ADVISORY GROUPS, which identifies advisory group members and the functions of each committee. Single copies of this publication are available from the NIH Committee Management Office upon request.

Once reviewed for merit, grant applications and the recommendations of the scientific/technical merit review group are referred for final review to the National Advisory Council or Board of the Institute(s) or Division to which the application has been assigned. Taken together, the initial review for scientific and technical merit, and the second review both for merit and for significance to a particular Institute's programs and objectives, constitute the NIH "dual review process" for grant applications.

The National Advisory General Medical Sciences Council serves as the NIGMS final review group. This Council has functioned continuously since 1963, and was originally established by the Surgeon General with the approval of the Secretary, DHEW, following provisions of the Institute's enabling legislation. Now, under the Federal Advisory Committee Act (PL 92-463), the Secretary is empowered directly to charter the Council, recharter it every two years, and to appoint its members.

The Council by law consists of 12 appointed members who are leaders in the fundamental sciences, medical sciences, education, or public affairs, plus two ex-officio members who represent medical affairs of the Veterans Administration and the Department of Defense. Members are appointed for overlapping terms of four years, beginning November 1, and no member is eligible for reappointment to the same Council or another Council within one year after the end of his or her term. At least six of the appointed members are chosen in consideration of their biomedical scientific qualifications. The Director, NIH, or, in his absence, the Director, NIGMS, chairs the Council.

Meetings of the Council are held three times a year, as called by the chairman, who also approves the agenda. Council recommendations are made to the Secretary, Assistant Secretary for Health, and the Director, NIH, on the merit of projects proposed for grant-in-aid support, and no award can be made without the Council's approval. The Council also makes recommendations on policy matters and advises the Institute on its program balance.

Office of Review Activities

This unit has responsibility for the administration and coordination of review activities conducted by the Institute's four chartered initial review groups, as well as by occasional special study sections. The four committees are: (1) Cellular and Molecular Basis of Disease Review Committee, (2) Genetic Basis of Disease Review Committee, (3) Minority Access to Research Careers Review Committee, and (4) Pharmacology-Toxicology Review Committee. Their specific assignments are to assess the scientific merit of research center and program project grant applications and/or institutional National Research Service Award applications. From time to time, these committees may advise the Institute on matters of policy development, priority setting, and the implementation of its biomedical research and training authorities.

The Institute committees each have from 12 to 18 members who are appointed by the Director, NIH, for overlapping terms of four years on the basis of their scientific qualifications in pertinent fields. The committees meet three times a year in phase with the DRG study section review cycle.

Senior staff of the Institute are constituted as a Scientific Directorate which meets periodically to advise the Director, NIGMS, on Institute policies. It also reviews the merit of unsolicited contract proposals and proposals for support of symposia and other meetings.

The Office of Recombinant DNA Activities:

In May 1976 the Director, NIH, assigned responsibility for the Office of Recombinant DNA Activities (ORDA) to NIGMS. This office has a trans-NIH role for reviewing research proposals and advising on matters involving recombinant DNA technology.

ORDA's review function is one of assuring that all proposals for research and research training that use recombinant DNA technology conform to NIH policies and procedures, as set down in the published NIH Guidelines for Recombinant DNA Research. ORDA also has responsibility for reviewing the composition and qualifications of members of institutional safety committees, in respect to their suitability and performance in complying with NIH requirements set forth in the Guidelines.

Another important responsibility of the Office is to seek to coordinate NIH recombinant DNA technology policies and administration with those of other Federal agencies, including the National Academy of Sciences, National Science Foundation, Energy Research and Development Administration, Department of Agriculture, Environmental Protection Agency, National Aeronautics and Space Administration, and the Occupational Safety and Health Administration. ORDA has the same responsibility to develop interrelationships with private foundations, professional societies, scientific journals and industry, and to coordinate NIH policies with appropriate international bodies. Among the latter are the European Molecular Biology Organization, the International Council of Scientific Unions and the World Health Organization, as well as various concerned organizations established individually by many foreign nations.

ORDA, in addition, is a major focus for national and international information and communications on the subject, one primary function being to maintain a central register of all NIH supported projects involving recombinant DNA technology in order to capture data on institutions and individuals working in this area. To assist the rapid dissemination of information both in the United States and abroad, ORDA publishes quarterly the Recombinant DNA Technical Bulletin, to convey informally and quickly such contributed items as progress notes, abstracts or summaries of tentative findings, as well as news and comments on recombinant DNA research matters of interest to investigators and administrators alike.

Advisory Council Membership

National Advisory General Medical Sciences Council

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Director, National Institutes of Health

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Executive Secretary

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Ex Officio Members

Dr. Marguerite Hays
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NIGMS Peer Review Committees

Cellular and Molecular Basis of Disease Review Committee

Chairman

Dr. Thomas E. Thompson (79)
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Department of Biochemistry
School of Medicine
University of Virginia
Charlottesville, Virginia 22901

Members

Dr. Klaus G. Bensch (81)
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Dr. John A. DeMoss (79)
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Graduate School of Biomedical Science
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(2 vacancies)

Executive Secretary

Dr. Lee Van Lenten
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(6 vacancies)

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Members of the NIGMS Scientific Directorate

Scientific Directorate

National Institute of General Medical Sciences

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Chairman, Institute Director

Dr. Fred Bergmann
Director, Genetics Program

Dr. Emilie A. Black
Assistant Director for Clinical Research

Mr. Elward Bynum
Director, Minority Access to Research Careers Program

Dr. Frederick Ferguson
Program Coordinator, Physiology and Biomedical Engineering Program

Mr. William Fitzsimmons
Executive Officer

Dr. Sara Gardner
Deputy Director, Pharmacology and Toxicology Program

Dr. William J. Gartland
Director, Office of Recombinant DNA Activities

Dr. Arthur E. Heming
Associate Director for Program Activities

Dr. Howard Jenerick
Chief, Office of Program Analysis

Dr. Elke Jordan
Deputy Director, Genetics Program

Dr. Charles A. Miller
Director, Cellular and Molecular Basis of Disease Program

Dr. Vincent Price
Deputy Director, Cellular and Molecular Basis of Disease Program

Dr. Leo von Euler
Institute Deputy Director

NIGMS Historical Information

Important Events in NIGMS History

July 16, 1958 - The NIH Division of General Medical Sciences was established with approval of the Secretary of Health, Education, and Welfare (HEW), assuming responsibility for research and training activities previously administered by the Division of Research Grants.

October 17, 1962 - Public Law 87-838 authorized the Surgeon General to establish an Institute for the conduct and support of research and research training in the general or basic medical sciences and related natural or behavioral sciences which have significance for two or more other Institutes (of NIH), or are outside the general areas of responsibility of any other Institute.

January 30, 1963 - The Secretary, HEW, approved establishment of NIGMS. Programs of the new Institute were largely derived from the former NIH Division of General Medical Sciences. Dr. Clinton Powell was appointed Director of the Institute.

August 1, 1964 - Dr. Frederick L. Stone named Institute Director.

October 1, 1970 - Dr. DeWitt Stetten, Jr., appointed Institute Director.

June 6, 1973 - NIGMS activities in support of biomedical research and training were organized as formal programs encompassing general areas of scientific endeavor: Cellular and Molecular Basis of Disease, Genetics, Pharmacology-Toxicology, Clinical and Physiological Sciences, and Biomedical Engineering.

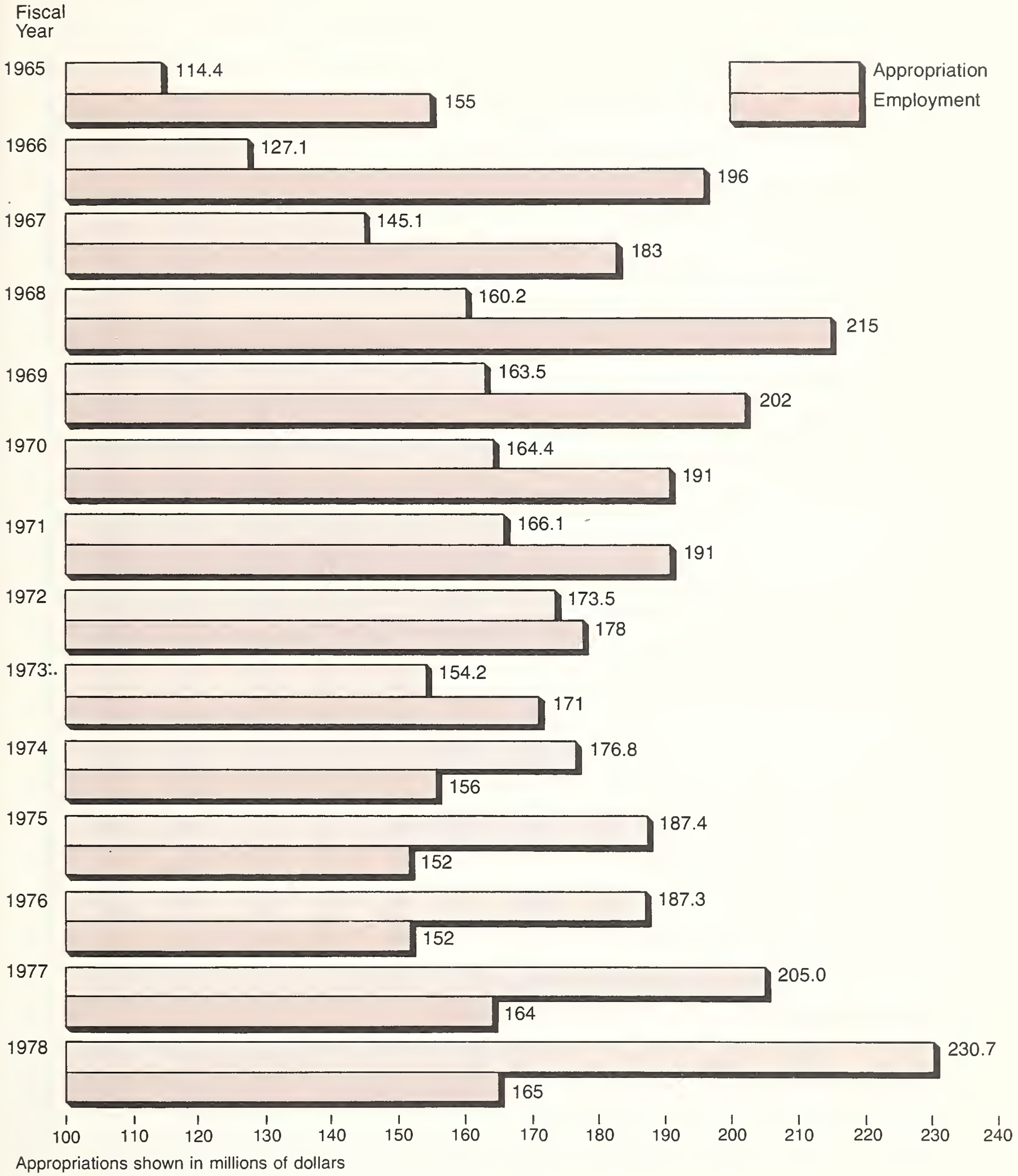
July 12, 1974 - Public Law 93-348, the National Research Service Act, was passed by Congress, superseding prior NIH authority under the Public Health Act for the support of predoctoral and postdoctoral research training in biomedical sciences. New provisions of the NSRA include financial penalties for trainees who fail to use their training in research-related endeavors and the restriction of support to scientific areas and disciplines identified by the Secretary, HEW, as being in short supply in terms of projected future manpower requirements. The legislation is particularly significant to the NIGMS because the Institute administers approximately two-thirds of all NIH predoctoral research training support.

September 1, 1974 - Dr. Ruth L. Kirschstein appointed Institute Director.

December 6, 1975 - The Minority Access to Research Careers (MARC) Program was formally established by the Director, NIGMS. The program originated in 1972 as a special effort to encourage and assist ethnic minority institutions in strengthening their research training capabilities, thus to increase the opportunities for their students to qualify for and engage in the nation's overall health science endeavor.

May 15, 1978 - The NIGMS Clinical and Physiological Sciences Program and the Biomedical Engineering Program were merged, forming a single Physiology and Biomedical Engineering Program.

Appropriations and Employment

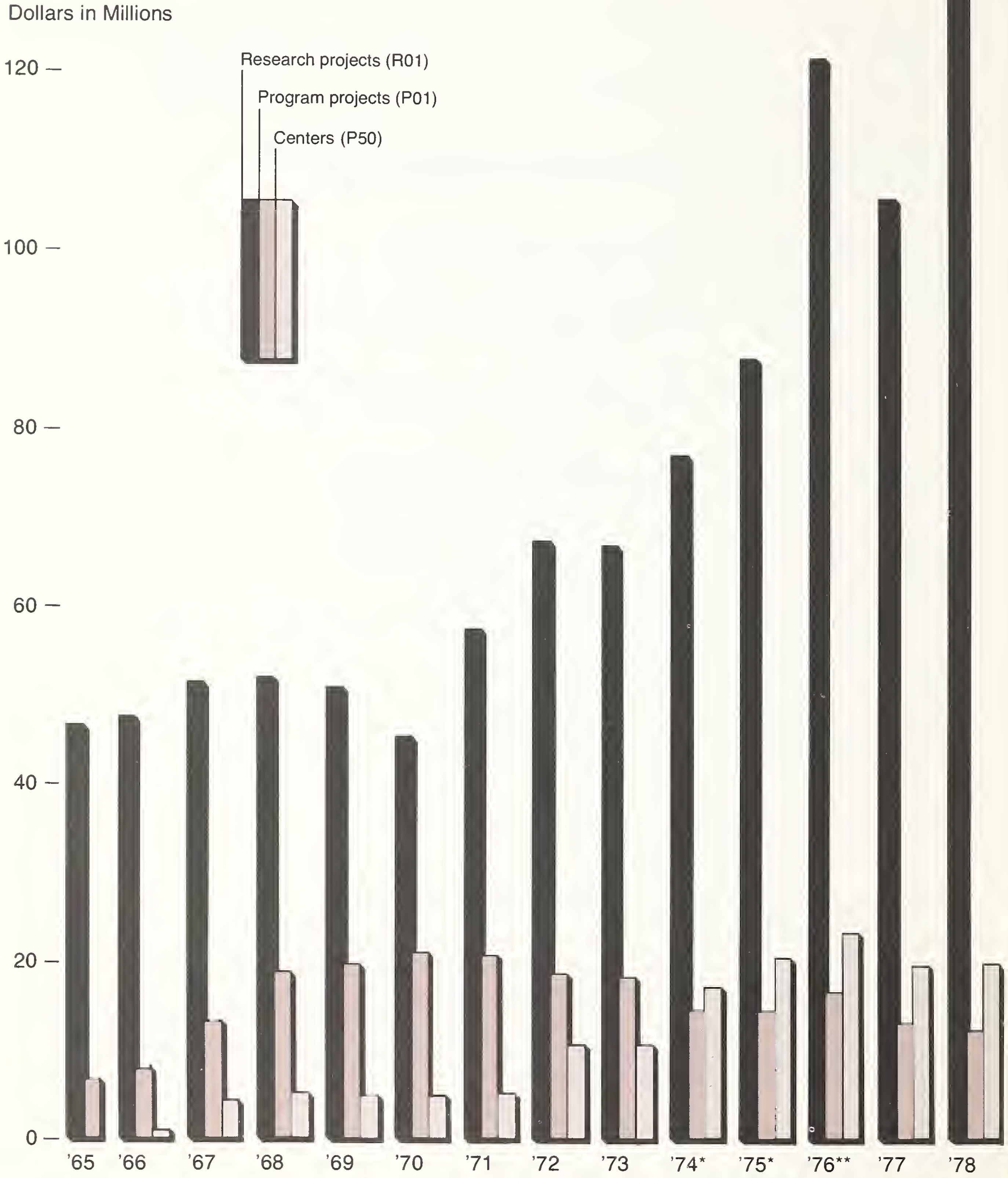


*Represents Continuing Resolution

**$28,966,000 of the 1973 appropriation were impounded and not allowed for obligation, of which $26,442,000 was then released for obligation in 1974 and $2,504,000 in 1975.

Full-Time permanent employees as of June 30

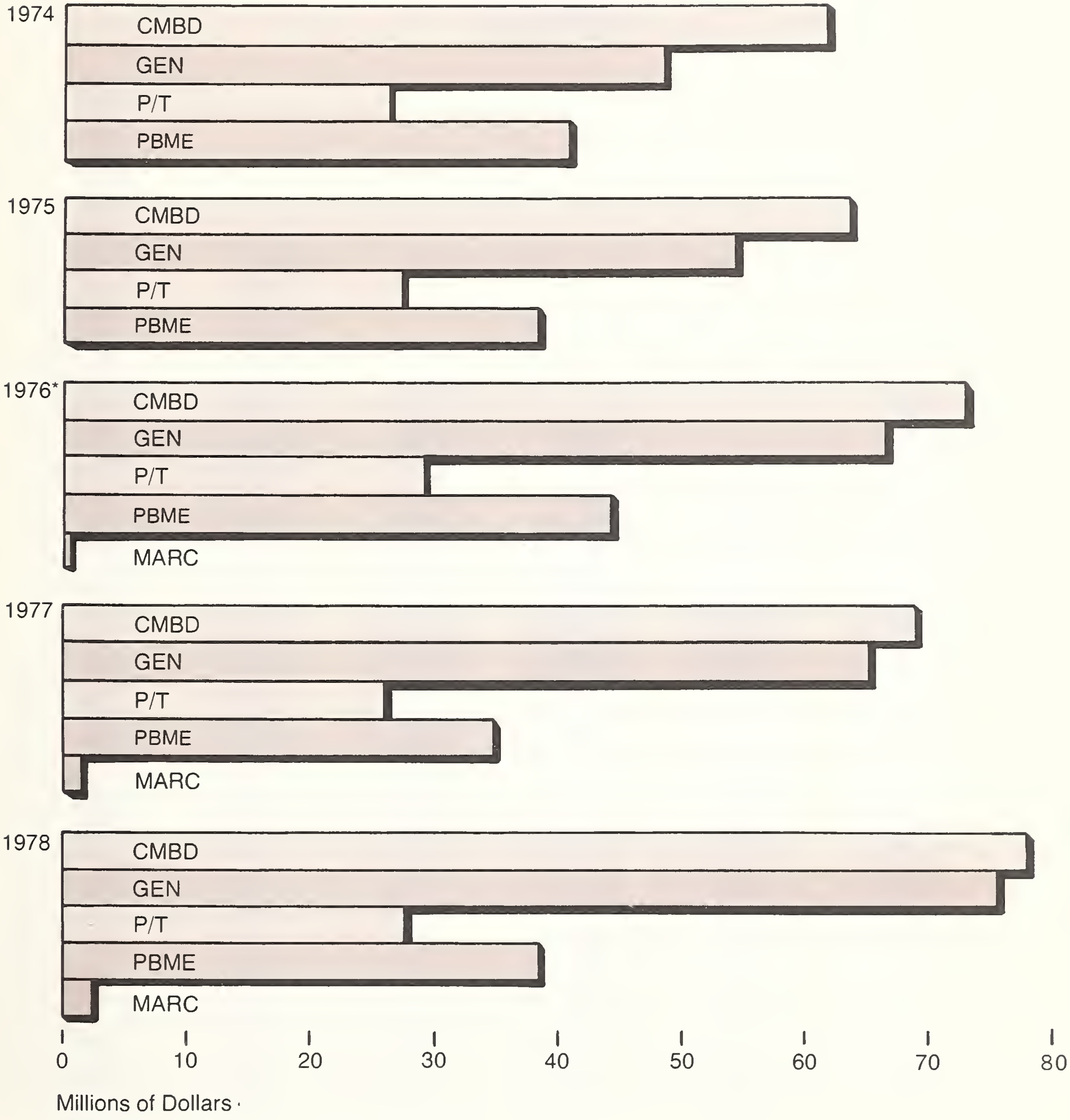
Research Project Grants, Program Project Grants, and Center Grants,
Fiscal Years 1965-1978



*Includes impounded funds.
**Reflects a period of five quarters due to change of Federal Fiscal Year from July 1 to October 1.

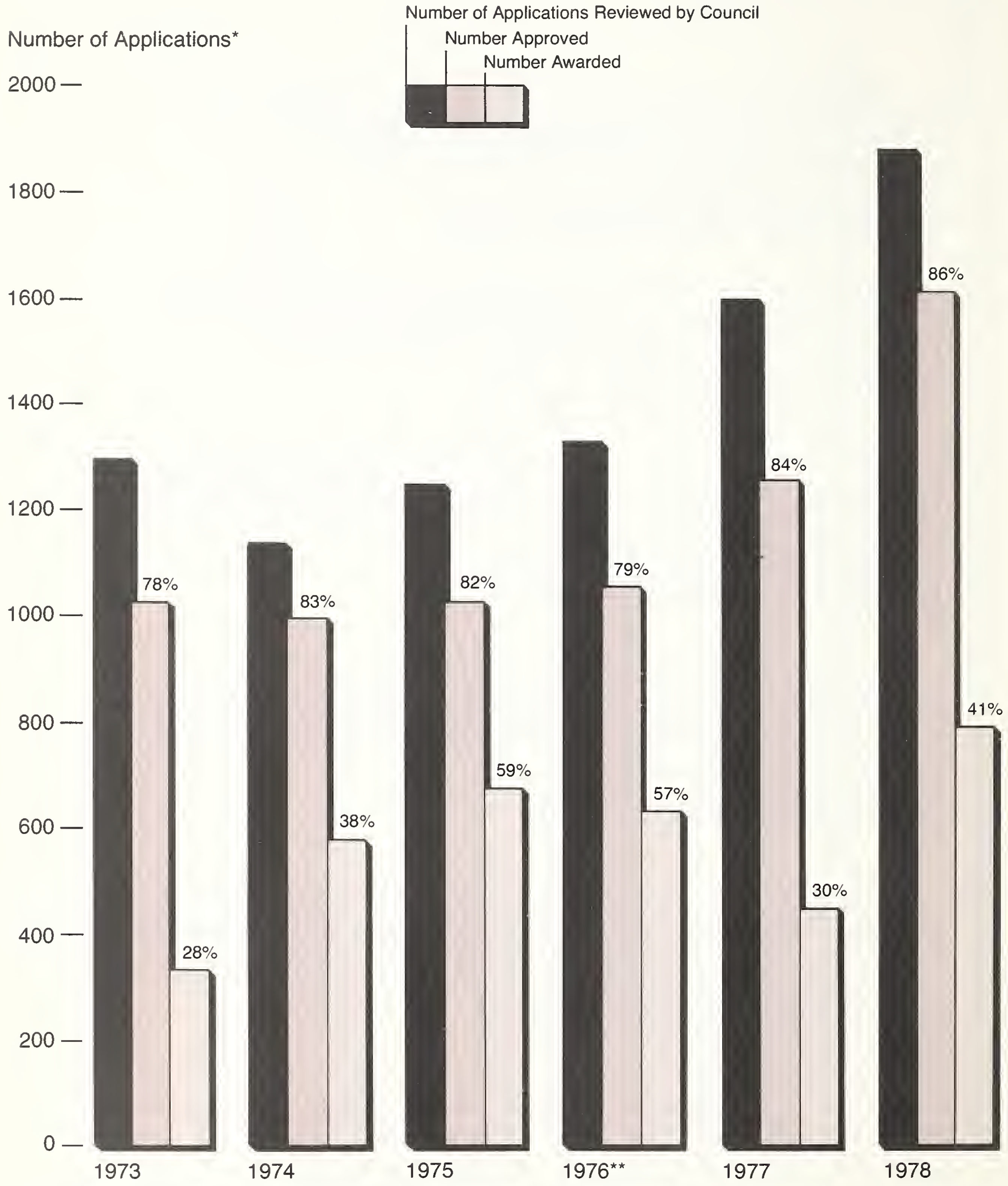
NIGMS Obligations by Program Activities— Fiscal Years 1974-1978

(Amounts do not include direct operations costs nor general research support)



*Represents a period of five quarters due to change of Federal Fiscal Year from July 1 to Oct. 1.

Number of NIGMS Research Grant Applications Approved and Awarded
FY 1973-78



*Includes Applications for regular projects, program projects, centers, supplemental, and career awards.
**Reflects a period of five quarters due to change of Fiscal Year starting date from July 1 to October 1.

Number of NIGMS Trainees by Activity (Full-Time Equivalents):

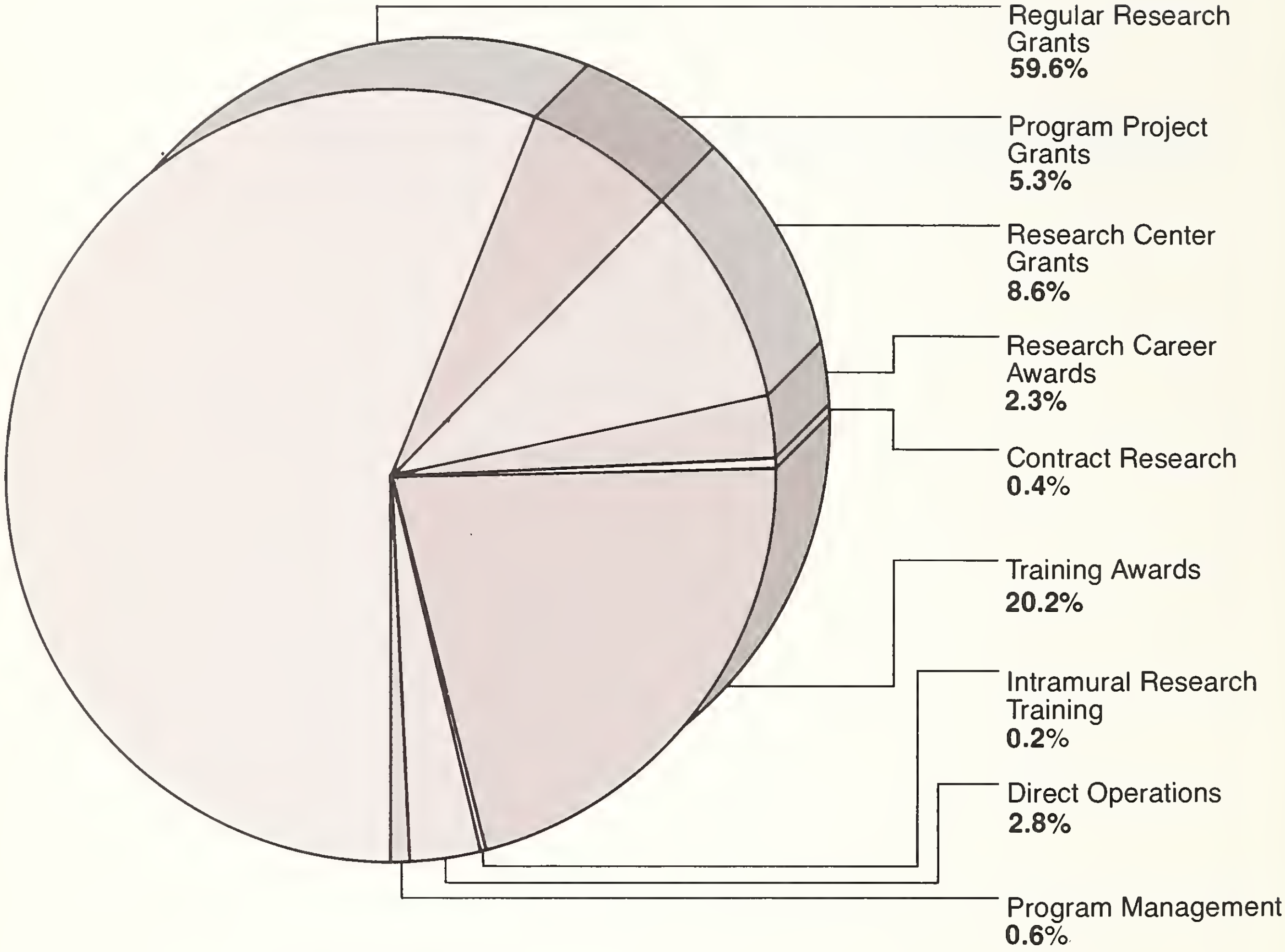
Fiscal Years 1971-1978

Regular Program	**1971**	**1972**	**1973**	**1974**	**1975**	**1976**	**1977**	**1978**
Predoctoral Fellowships (PHS F01, F12)	715	300	162	55	15	12	5	—
Predoctoral Training Grants (PHS T01, T05)	4,327	4,373	3,814	4,028	3,384	2,233	1,318	663
Predoctoral Training Grants (NRSA T32)	—	—	—	—	690	1,156	2,212	2,932
Total Predoctoral	*5,042*	*4,673*	*3,976*	*4,083*	*4,089*	*3,401*	*3,535*	*3,595*
Postdoctoral Fellowships (PHS F02)	446	396	286	174	73	18	—	—
Special Fellowships (PHS F03)	197	183	83	65	29	13	—	—
Postdoctoral Fellowships (PHS F22)	—	—	—	63	15	31	5	—
Postdoctoral Fellowships (NRSA F32)	—	—	—	—	243	184	272	262
Postdoctoral Training Grants (PHS T01)	931	811	626	519	409	268	196	93
Postdoctoral Training Grants (PHS T22)	—	—	—	60	87	104	11	11
Postdoctoral Training Grants (NRSA T32)	—	—	—	—	119	131	294	305
Total Postdoctoral	*1,574*	*1,390*	*995*	*881*	*975*	*749*	*778*	*671*
MARC Program								
Predoctoral Fellowships (PHS F14)	—	9	3	35	5	5	4	—
Predoctoral Training Grants (PHS T02)	—	—	—	44	67	85	77	64
Predoctoral Fellowships (NRSA F34)	—	—	—	—	8	6	16	19
Undergraduate Training Grants (NRSA T32)	—	—	—	—	—	—	74	117
Total MARC Predoctoral	—	*9*	*3*	*79*	*80*	*96*	*171*	*200*
Postdoctoral Fellowships (PHS F14)	—	2	2	14	1	1	—	—
Visiting Scientist (PHS F16)	—	1	2	—	—	—	—	—
Postdoctoral Fellowships (NRSA F34)	—	—	—	—	10	8	21	17
Visiting Scientist (NRSA F36)	—	—	—	—	—	—	—	1
Total MARC Postdoctoral	—	*3*	*4*	*14*	*11*	*9*	*21*	*18*

Distribution of Awards for FY 1978

NIGMS Obligations by Budget Mechanism

Total Fiscal Year 1978 Obligations—$230,415,000

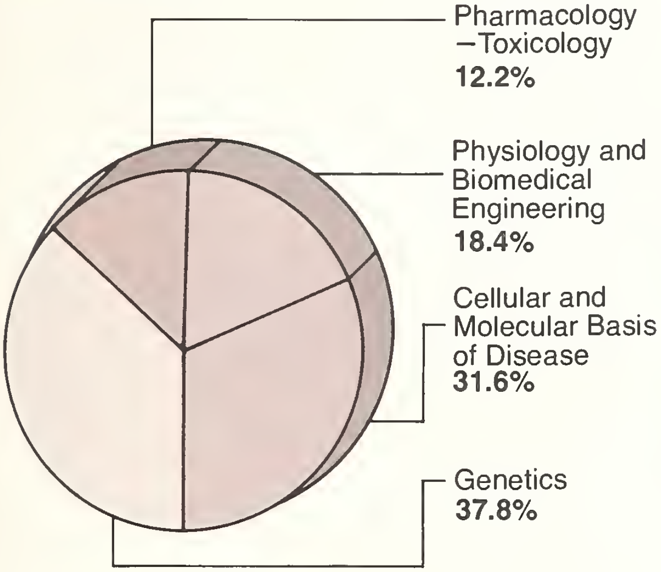


Budget Mechanism	**Obligated Dollars**
Research Project Grants	$137,249,000
Program Project Grants	12,321,000
Research Center Grants	19,880,000
Research Career Awards	5,243,000
Training Awards:	
Individual Fellowships	4,229,000
Institutional Fellowships	42,341,000
Research Contracts	893,000
Intramural Research Training	379,000
Direct Operations	6,534,000
Program Management	1,346,000
TOTAL NIGMS OBLIGATIONS	*$230,415,000*

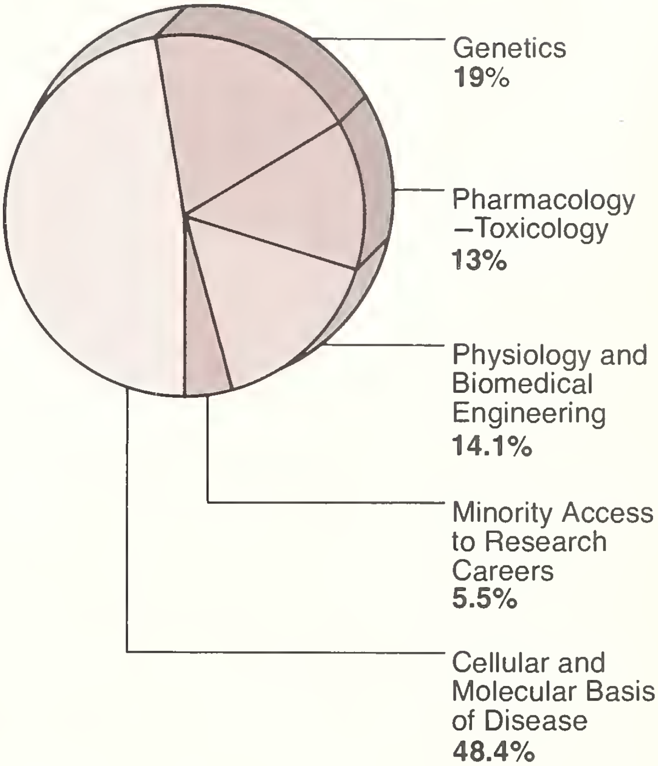
NIGMS Obligations by Program Activities

Total Fiscal Year 1978 Obligations by Programs—$222,156,000

Research Support



Training Support



Research Support*	Obligated Dollars
Cellular & Molecular Basis of Disease	$55,504,000
Genetics	66,339,000
Pharmacology —Toxicology	21,348,000
Physiology and Biomedical Eng.	32,395,000
TOTAL RESEARCH SUPPORT	*$175,586,000*

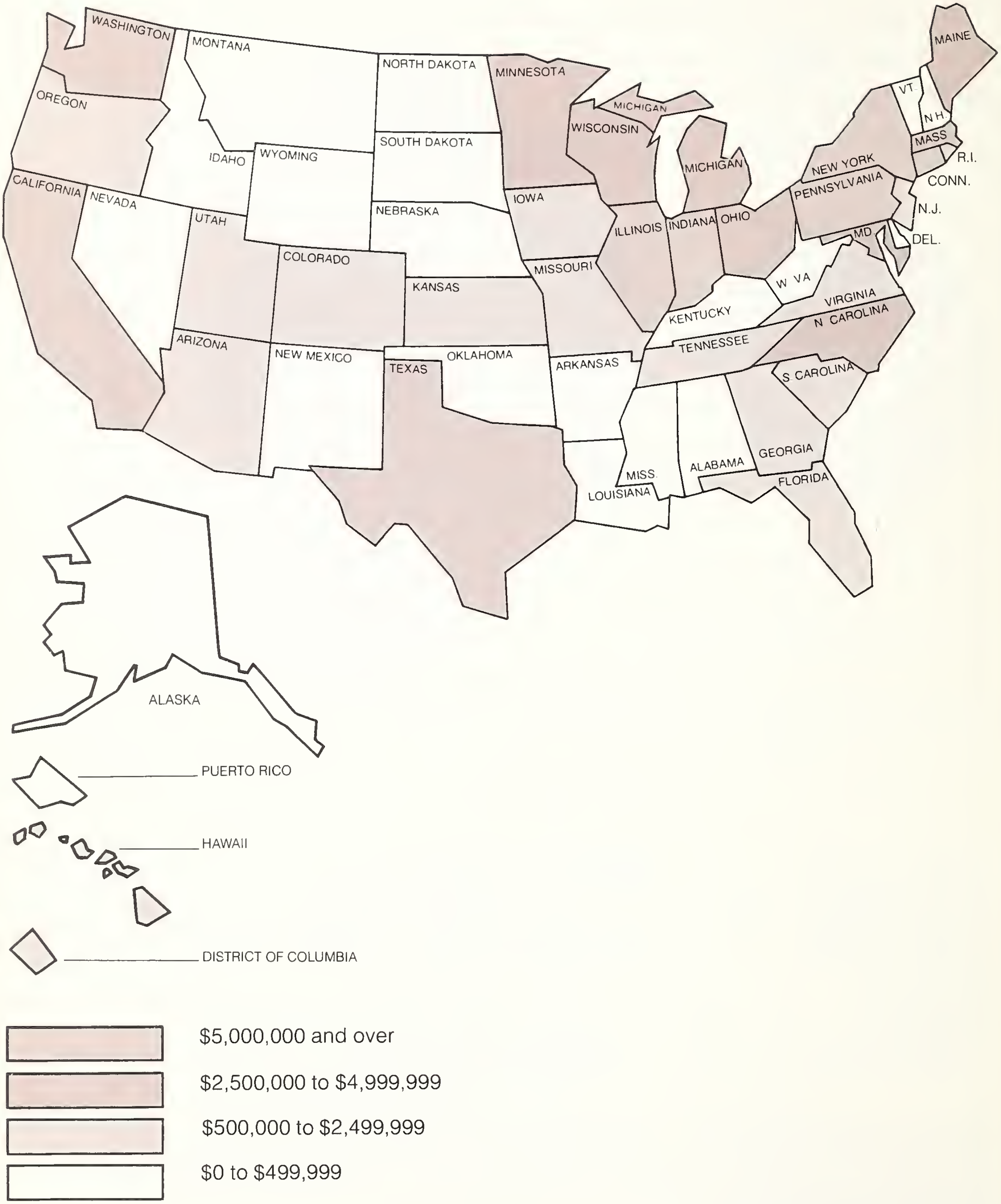
Training Support	Obligated Dollars
Cellular & Molecular Basis of Disease	$22,551,000
Genetics	8,843,000
Pharmacology – Toxicology**	6,020,000
Physiology and Biomedical Engineering	6,585,000
Minority Access to Research Careers	2,571,000
TOTAL TRAINING SUPPORT	*$46,570,000*

*Includes regular research grants (ROI's), program projects (POI's), center grants (P5O's), career development awards (KO4's), and research/development contracts.

**Includes intramural research training.

Geographic Distribution of NIGMS Research Grants

Fiscal Year 1978



Amount (Direct Costs) and Number of NIGMS Research Grants by States

Fiscal Year 1978

State	Dollars	Number of Projects
Alabama	340,064	6
Alaska	391,945	1
Arizona	991,595	19
Arkansas	198,156	4
California	32,091,762	332
Colorado	2,987,149	45
Connecticut	6,614,407	68
Delaware	433,406	9
District of Columbia	661,960	11
Florida	2,031,270	38
Georgia	1,623,676	27
Hawaii	556,581	11
Idaho	43,097	2
Illinois	7,272,389	99
Indiana	5,156,680	72
Iowa	2,394,796	24
Kansas	1,924,642	24
Kentucky	478,729	10
Louisiana	328,823	8
Maine	479,246	8
Maryland	4,505,173	55
Massachusetts	18,872,605	199
Michigan	3,275,669	48
Minnesota	3,304,946	49
Mississippi	170,745	3
Missouri	2,516,536	36
Montana	144,958	3
Nebraska	234,922	5
New Hampshire	449,478	6
New Jersey	2,223,369	37
New Mexico	156,464	4
New York	23,065,933	279
North Carolina	4,717,274	53
North Dakota	20,336	1
Ohio	3,935,403	56
Oklahoma	330,854	7
Orgeon	2,286,773	35
Pennsylvania	9,085,632	114
Rhode Island	712,385	16
South Carolina	1,035,778	9
South Dakota	27,048	1
Tennessee	2,771,002	27
Texas	6,173,360	92
Utah	3,168,493	37
Vermont	200,612	4
Virginia	1,971,445	36
Washington	6,040,686	54
West Virginia	208,834	4
Wisconsin	4,259,985	49
Wyoming	272,068	6
Puerto Rico	36,653	1
TOTALS:	*173,175,792*	*2,144*

Amount (Total Costs) and Number of NIGMS Training Awards by States

Fiscal Year 1978

State	Dollars	Number of Institutional Fellowship(s)	Number of Individual Fellowship(s)
Alabama	524,384	6	2
Arizona	173,015	3	1
Arkansas	19,500	0	1
California	7,418,010	53	67
Colorado	693,447	10	7
Connecticut	1,790,077	10	10
District of Columbia	500,390	5	3
Florida	91,683	1	2
Georgia	623,022	7	6
Hawaii	67,874	1	1
Illinois	3,190,965	19	7
Indiana	719,153	7	6
Iowa	467,424	7	1
Kansas	231,070	3	0
Louisiana	160,058	2	1
Maine	51,494	1	0
Maryland	1,406,003	9	11
Massachusetts	3,888,669	26	32
Michigan	1,575,519	13	7
Minnesota	660,898	8	3
Mississippi	143,942	3	1
Missouri	1,213,626	8	5
New Jersey	522,334	4	2
New Mexico	155,601	2	0
New York	7,260,226	51	42
North Carolina	2,237,045	17	2
North Dakota	29,281	1	0
Ohio	1,051,793	9	1
Oklahoma	47,414	1	0
Oregon	518,486	6	5
Pennsylvania	2,566,188	18	8
Rhode Island	35,750	0	2
South Carolina	160,620	3	1
Tennessee	1,027,269	11	4
Texas	1,000,391	14	9
Utah	274,168	3	3
Virginia	545,160	9	3
Washington	1,435,286	11	15
West Virginia	89,544	1	0
Wisconsin	1,710,274	8	10
Puerto Rico	28,200	0	2
TOTAL	*46,305,253*	*371*	*283*

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DHEW Publication No. (NIH) 79-1815